LIVES IN LAND

MUCKING EXCAVATIONS

by Margaret and Tom Jones, 1965–1978

Christopher Evans,
Grahame Appleby and Sam Lucy,
with Jo Appleby and Matt Brudenell

CAU Landscape Archives Series:
Historiography and Fieldwork
(No. 2 / Mucking 6)

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Mucking Excavations by Margaret and Tom Jones, 1965–1978: Prehistory, Context and Summary

Christopher Evans, Grahame Appleby and Sam Lucy,
with Jo Appleby and Matt Brudenell

With contributions by
Paul Barford, Justine Bayley, Mark Birley, Nigel Brown, David Buckley, Timothy Champion, Anwen Cooper, Geraldene Done, David Dungworth, John Etté, Alex Gibson, James Greig, Colin Haselgrove, Elizabeth Healey, Hilary Howard, Mark Knight, Ruth Leary, Ailsa Mainman, Hilary Major, Quita Mould, Peter Murphy, Peter Northover, Vida Rajkovača, Stephen Rippon, Ben Roberts, Julia Roberts, Maisie Taylor and Isobel Thompson, and the late Margaret Jones, Ian Kinnes, Tim Potter and Isobel Smith

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With graphics by
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Oxbow Books
Oxford & Philadelphia

Published in the United Kingdom in 2016 by
OXBOW BOOKS
10 Hythe Bridge Street, Oxford OX1 2EW

and in the United States by
OXBOW BOOKS
1950 Lawrence Road, Havertown, PA 19083

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Hardcover Edition: ISBN 978-1-78570-148-1
Digital Edition: ISBN 978-1-78570-149-8

A CIP record for this book is available from the British Library

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Printed in the United Kingdom by Short Run Press, Exeter

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Front cover: Early phasing dye-line showing Bronze Age ditches and Iron Age roundhouses and enclosures (Figure 2.1 in this volume)
Back cover: Mucking's 'Phasing Wall', South Rings, RBI and ABC Enclosures portion (British Museum, Blythe Road Out-station; photograph, D. Webb) (Figure 3.1. in this volume)

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Project Context – Acknowledgements

From the outset, our main debt of gratitude must be to J.D. Hill of the British Museum, who – as fully outlined in Chapter One below – initiated the work and, together with Jonathan Williams, supported its progress throughout. At the Museum, we must also thank Jody Joy, Ben Roberts, Marta Flannelly and Tony Spence, variously for archival access and information.

The archival researches were, effectively, kick-started by the provision of an Aggregates Levy Sustainability Fund grant and, at English Heritage, the project has been fully backed by Kath Buxton, Barney Sloane and Kim Stabler. The work's instigation was furthered by a research grant from the McDonald Institute (Dept of Archaeology, University of Cambridge), for which we thank James Barrett and Graeme Barker. Once up and running, the project received annual grants from both the British Museum and the Society of Antiquaries of London's Margaret and Tom Jones Bequest Fund and, at the Society, we have been grateful for the support of John Creighton, David Gaimster, John Lewis, Martin Millett and Geoff Wainwright. The final production stages of the volumes were enabled by a grant from the British Academy, with the production of the Roman volume additionally helped by a grant from The Roman Research Trust.

Throughout, the cooperation of the British Museum/English Heritage post-excavation team (from the late 1980s) has been exemplary. Ann Clark (now Couldrey), Jon Etté and Chris Going have not only been generous with their draft texts, but also their insights into the daunting 'mass' that is Mucking's labyrinthine archives.

The same is also true of a number of the project's 'old hand' participants, especially Paul Barford, Ruth Birss (now Leary), Jonathan Catton, Elizabeth Healey, Rosemary Jefferies and Jonathan Moffett. Aside from proving good archival guides, Elizabeth and Rosemary enthusiastically rose to the daunting challenge of completing texts based on data generated a quarter of a century ago and it has only been a pleasure to work with them. The specialists have, otherwise, been afforded the opportunity to revise their contributions, though some have found this impossible given that actual artefact (re-)review – in other words, actually getting the finds out again – was not an option. The only exception to this was Mark Birley. Despite our attempts, his present-day whereabouts could not be established and, accordingly, we have completed his text without his input.

In the volume's latter stages it has been a pleasure to compile its 'Recollections' sections. Our many contributors provided insights, and often humour, into the events of 35–45 years ago, which is no mean feat.

The reversed 'headline' authorship of these two Cambridge Archaeological Unit volumes reflects their primary authorship. This volume was written by Evans and the Roman by Lucy. While both have been read and revised according to the comments of the other – especially as regards their Conquest Period interface – there is no escaping the fact that, reflective of both our individual interests/approach and the differing character of their period-contents, they are not 'seamless'. This must invariably be the case and, itself, is telling of the nature of 'authorship of the past'.

Both books are products of the Cambridge Archaeological Unit, and it is with pleasure that we acknowledge Iain Forbes' digitising/GIS skills, Andrew Hall and Vicki Herring's superb graphics, and also the quality of Dave Webb's photography. Throughout, the volumes could not have been completed without the invaluable computing, research and editorial support of Grahame and Jo Appleby, as well as also Nicole Taylor, who provided invaluable assistance in the project's early stages.

It has proven impossible to individually attribute many of the early 1980s drawings that are reproduced here, although the pottery was apparently largely the work of Joanna Bacon, with Casper Johnson and Sandy Ward drawing the fired clay objects. Dawn Flowers was responsible for the wider site-area plans that feature in Chapter Four; these were apparently assembled from *Atlas*-volume plan sheets that had first been rendered by George Taylor. Of the latter, one of the pleasures of this book has been its personal interconnections with earlier projects and the British Museum-era post-excavation team. Both George and Jon Etté worked on Haddenham's writing-up immediate prior to their Mucking involvement; Chris Going was an associate of the Cambridge Archaeological Unit immediately following the Museum-phase's aftermath and I can still remember his Unit office walls plastered with Mucking imagery. Almost like wallpaper, I can recollect thinking, 'my god, what a site', and it is pleasing that circumstances have unfolded as they have.

Although Prof Richard Bradley kindly served as this volume's academic reader, specific portions of it have been read by many and it has only benefited from their comments. Foremost amongst these would have to be John Barrett, Nigel Brown, Ann Clark, Tim Darvill, Andrew Fitzpatrick, Chris Going, Colin Haselgrove, Catherine Hills, Gavin Lucas and Paul Sealey; Paul Barford also kindly read the entire volume and it has duly been informed by his insights. Equally, relevant discussions and information-exchange must be acknowledged with Marcus Brittain, Anwen Cooper, Paul Drury, Sheila Elsdon, Helena Hamerow, Mark Knight, Lesley McFadyen, Martin Millett, Rog Palmer, Dom Perring, Francis Pryor, Niall Sharples, Marie Louise Stig Sørensen, Marc Vander Linden, Geoff Wainwright, Leo Webley, Tony Wilkinson and Dave Yates. To be singled out in this regard are Nigel Brown and Stuart Foreman, who respectively provided us with their Springfield Lyons and Oxford Archaeology's Stanford Wharf texts (both then in draft). Also in this capacity, Tim Champion and Steven Rippon are to be thanked for providing their respective overview contributions to Chapter Six.

Among this volume's participating specialists, Mark Birley was grateful to Richard Bradley and Ian Kinnes for discussions concerning Grooved Ware. Alex Gibson extends his thanks to the late Margaret Jones and her post-excavation team for inviting him to comment on the pottery and for their help and hospitality. He would also like to thank Dr. Jan Lanting of the Biologisch-Archaeologisch Instituut of the Rijksuniversiteit, Groningen for discussing some of the rusticated ware with him. Similarly, Nigel Brown thanks the staff of Southend Museum, particularly Ken Crowe and the staff of Colchester Museum, particularly Dr Paul Sealey, for their assistance in making the Deverel Rimbury pottery held in their collections available, and for their hospitality during numerous visits over a number of years.

Featuring in Chapter Six, we are grateful that Kris Allan allowed to us reproduce his Mucking landfill image, 'A Sea of Rubbish', and Robin Standring provided that chapter's Luftwaffe image. In addition, John Creighton, Barry Cunliffe, Andrew Fitzpatrick, Colin Haselgrove and Dave Yates kindly gave us permission to use figures from their respective publications and which appear in Chapters Three, Five and Six. Similarly, Mike Allen allowed us to reprint the 'Gateway Ringwork' map (Fig. 6.2) from his and his colleagues' 2008 Kingsborough paper, just as Helen Saunders gave access to digital imagery from the *Aerial Archaeology in Essex* study (Ingle & Saunders 2011), with Marc Talon and Pete Clark giving permission to reproduce Chapter Three's cross-channel Late Bronze Age pottery figure and also providing crucial references. Finally in this capacity, David Neal generously allowed us to use the Gorhambury illustrations that feature in Chapter Five, with Karen Guthrie and Nina Pope providing that chapter's Inset's *Bata-ville* photograph, and Mike Pitts unearthed the site shots that illuminate Chapter Two's fieldwork recollections so well. Also to be thanked is Megan Price, who helped us navigate Christopher Hawkes' archives in Oxford while chasing his Margaret Jones/Mucking connections, and also Sheila Elsdon for meeting with us and kindly providing a number of the volume's photographs of Margaret Jones in action. Finally, having kept his Mucking-related correspondence, Peter Northover sent us copies of Margaret's letters to him and, as featuring in Chapter Three, these gave significant insights into the site's early-phase post-excavation procedures.

As to the volume's dedication, it was tempting to make it to those colleagues and contributors who sadly passed away during the course of the books' production: Tony Wilkinson and Ian Kinnes. In the end, though, it is only appropriate that we use that of Margaret Jones, which we stumbled upon in the archives: *The Mucking papers are dedicated to the discoverer of the Mucking crop mark site, Professor J.K. St Joseph, and to the thousands of excavators who must remain anonymous but without whose best efforts the sites would have remained a series of photographic images*.

Summary

Mucking was a site like no other. Directed by the indomitable Margaret Jones (and her husband, Tom) and eventually extending over 18ha, it was dug almost continuously between 1965 and 1978 and involved thousands of volunteers. They aimed for 'total archaeology' and 100% excavation of its myriad features (40,000+); the daunting scale of what they attempted is attested by its statistics: more than a million finds and 1145 burials, with some 400 structures identified. This, the Prehistory Volume (together with the companion book that covers the Roman), marks the end of the site's publication series. Not only does it fully outline the site's archaeology but – drawing upon the wealth of the project's archival sources – situates the fieldwork in its historiographical context. In order to further explore these issues, each chapter has inset-sections. Among them is an appreciation of Margaret Jones and the legacy of twentieth century female fieldworkers (Anwen Cooper and Julia Roberts' 'formidable women'), as well as interview-recollections by both members of the site and post-excavation teams.

The intensity of the site's excavation, and the resultant very high numbers of residual finds, allows for detailed mapping of its successive pre-Middle Bronze Age usage, with earlier Neolithic, Grooved Ware and Beaker foci all identified. The middle centuries of the second millennium BC saw the construction of eight, relatively small round barrows; thereafter followed an extensive Middle Bronze Age fieldsystem, which had accompanying settlement evidence within the site's northern quarter.

During the Late Bronze Age Mucking's terrace evidently saw much more widespread settlement. Most significantly, this was also marked by the concentric-circuit South Rings enclosure. With the related North Ring lying just north of the site, while primarily a defended high status farmstead (having evidence of metalworking and, arguably, controlling the salt trade), it later appears to have also acquired a mass-group ceremonial role.

Involving more than 100 roundhouses, and with four major settlement compounds dotting the length of the terrace, Mucking was continuously occupied throughout the Iron Age. That said, due to various circumstances, it has proven difficult to tease out its 'Late' manifestation and, requiring detailed interrogation of the site's pottery, these analyses now feature in the site's 'story'. Both the roundhouse-types and enclosures of the period show considerable variation. Of the latter, amongst the most important was the North Enclosure, which had both a remarkable round structure and yielded high quality metalwork (there also being evidence that metalworking was a specialised function of an adjacent roundhouse setting).

Undoubtedly, one of the most noteworthy outcomes of the current post-excavation programme was the recognition (and 'articulation') of the components of the Late Iron Age *The Plaza* for what they were. Flanked on opposing sides by linked square barrow settings, with an extraordinary almost street-like alignment of four- to nine-posters along its western long axis – and later unified as a great rectangular fence-delineated plot – this was clearly a major ceremonial complex. Its array of 'poster' granaries attests to huge-scale centralised grain storage which must have been intended for off-site export. Based on this, the site's pottery assemblage and the distinct linked-arrangement of its square barrows, a direct connection with the Champagne district of France is posited. As such, this reflects upon the nature of the social elites of the period, and many of the site's Late Iron Age components influenced its Early Roman usage.

The volume's final chapter includes a review by Tim Champion comparing the site's prehistory with recent Kent results (plus Stephen Rippon's survey of South Essex's marshland-usage in Medieval and later times) and, aside from reviewing such major themes as Continental contacts, acculturation, 'settlement territories' and the expression of social power in landscape, overviews Mucking's long-term sequence. Accordingly, it has summaries of both the site's Romano-British and Anglo-Saxon phases, and précises the Roman Volume's arguments that Mucking saw very early Anglo-Saxon settlement; certainly occurring in the early fifth, if not the later fourth century AD, this is likely to have been 'hosted' by local Romano-British communities.

Stressed throughout is the extraordinary character of Mucking's sequence and its unique qualities as a 'place': perched on an elevated gravel terrace flanked by river-side marshes. Aside from its generic Thames Gateway locale, from there – and there alone – there would have been an unimpeded viewshed down the river's lower reaches and estuary, with nothing effectively between you and the Continent. The argument is made that it was from the Late Bronze Age that Mucking's sequence (and population densities) took off and became 'special'. Indeed, the character and 'interfaces' of its later Iron Age/

Romano-British/Anglo-Saxon usage suggest a quasi-historical 'specificity', one whose complexity is unlikely to ever be fully understood.

Despite whatever parallels have been identified for its individual phases/components, with the advantage of hindsight it is now clear that Mucking had a sequence-density like no other site. It can only be hoped that, with the publication of these volumes, some small measure of justice has been done to the Joneses' achievement and perseverance on that wind-swept Thames-side terrace.

Résumé

Mucking était un site à nul autre pareil. Dirigé par l'indomptable Margaret Jones (et son mari Tom) et s'étendant éventuellement sur plus de 18 ha, il fut fouillé pratiquement sans interruption de 1965 à 1978 et entraina la participation de milliers de bénévoles. Leur but était de d'atteindre à une 'archéologie totale' et à l'excavation de 100% de sa myriade de vestiges (plus de 40 000); l'intimidante échelle de leur tâche est attestée par ses statistiques: plus d'un million de trouvailles et 1145 sépultures, ainsi que l'identification de quelques 400 structures. Cet ouvrage, le Volume Préhistoire (avec son pendant qui couvre la période romaine), marque la fin de la série de publications consacrées au site. Non seulement expose-t-il la totalité de l'archéologie du site mais encore, faisant appel à la richesse des sources archivées du projet, il situe les travaux de terrain dans leur contexte historiographique. De manière à aller au fond de ces questions, chaque chapitre contient des encarts. On trouvera parmi eux un éloge de Margaret Jones et de l'héritage laissé par les travailleuses de terrain du vingtième siècle (les 'formidables femmes' d'Anwen Cooper et Julia Roberts),ainsi que les souvenirs d'entretiens aussi bien de membres de l'équipe de fouille que de celle du suivi de fouilles.

L'intensité des fouilles du site, et les très grands nombres de trouvailles résiduelles qui en ont résulté, permettent une cartographie détaillée de ses utilisations successives avant l'âge du bronze moyen, y compris l'identification de tous les centres de poterie cannelée et campaniforme du néolithique ancien. Les siècles du milieu du second millénaire av.J.-C. furent témoins de la construction de huit tertres ronds relativement petits, suivie plus tard par un système de champs extensif de l'âge du bronze moyen, qu'accompagnaient des témoignages d'occupation à l'intérieur du quart nord du site.

Au cours de l'âge du bronze final la terrasse de Mucking connut sans aucun doute une occupation bien plus étendue. Plus particulièrement, ceci se manifestait aussi par l'enclos à circuit concentrique de South Rings. Son pendant, le North Ring, se trouvant juste au nord du site, bien qu'originellement une ferme de haut rang avec défenses (il existe des témoignages de travail du métal, et, peut-être de contrôle du commerce du sel), semble avoir aussi acquis plus tard un rôle cérémoniel pour un groupe de masse.

Comprenant plus de 100 maisons rondes, et avec quatre unités d'occupation majeures parsemées le long de la terrasse, Mucking fut occupé sans interruption tout au long de l'âge du fer. Ceci dit, en raison de la diversité des conditions, il s'est avéré difficile de démêler sa manifestation 'finale' et, nécessitant une interrogation détaillée de la poterie du site, ces analyses figurent maintenant dans 'l'histoire' du site. Aussi bien les types de maisons rondes que les enclos de la période présentent de considérables variations. De ces derniers, parmi les plus importants, se trouvait l'Enclos Nord, qui avait à la fois une structure circulaire remarquable et a livré de la métallurgie de grande qualité (il est aussi avéré que la métallurgie était une fonction spécifique à un ensemble de maisons rondes adjacentes).

Sans aucun doute, l'un des plus remarquables résultats de l'actuel programme de suivi de fouilles fut la reconnaissance (et 'l'articulation') des composants de *la Plaza* de l'âge du fer final pour ce qu'ils étaient. Flanqués sur les côtés opposés de groupes de tertres carrés reliés entre eux, avec un extraordinaire alignement, presque comme une rue, de structures à entre quatre et neuf poteaux sur la longueur de son grand axe ouest, réunis plus tard sous la forme d'une grande parcelle rectangulaire délimitée par une clôture, il est clair que cela constituait un complexe cérémoniel majeur. Sa rangée de greniers 'sur poteaux' atteste de l'échelle gigantesque de ce stockage centralisé de grain sans doute destiné à être exporté hors du site. S'appuyant sur ce fait, sur l'assemblage de poterie du site et la disposition particulière de ses tertres carrés reliés entre eux, un lien direct avec la région de la Champagne en France est avancé. Donc ceci se reflète dans la nature des élites sociales de la période et nombre des composants du dernier âge du fer du site influencèrent son utilisation au début de la période romaine.

Le dernier chapitre de ce volume comprend une étude de Tim Champion comparant la préhistoire du site à de récents résultats du Kent (plus un examen de l'utilisation des marais du sud de l'Essex au Moyen-Age et après de Stephen Rippon) et en plus d'examiner des thèmes majeurs tels que les contacts avec le continent, l'acculturation, les 'territoires d'occupation' et l'expression du pouvoir social dans le paysage, il présente une vue d'ensemble de la séquence de longue durée de Mucking. En conséquence, il contient des résumés des deux phases romano-britannique et anglo-saxonne du site et résume les arguments du Volume Romain, que Mucking a vu très tôt des occupations anglo-saxonnes; celles-ci se produisant certainement au début du cinquième voire à la fin du quatrième

siècle après J.-C.,il est probable que les communautés romano-britanniques locales ont joué le rôle 'd'hôtes'.

Nous insistons tout au long sur le caractère extraordinaire de la séquence de Mucking et sur ses uniques qualités en tant que 'localité'perchée sur une terrasse de graviers surélevée, flanquée par les marais qui bordent le fleuve. En plus de sa situation générique de Porte de la Tamise, de là, et de là seulement, vous auriez eu une vision ininterrompue du fleuve en aval et de son estuaire sans rien entre vous et le continent. Nous avançons l'opinion que c'est à partir de l'âge du bronze final que la séquence de Mucking (et les densités de population) se sont envolées et sont devenues 'spéciales'. Vraiment, le caractère et les 'interfaces' de son utilisation dans la deuxième partie de l'âge du fer et aux périodes romano-britannique et anglo-saxonne suggèrent une 'spécificité' quasi- historique, spécificité dont la complexité ne sera probablement jamais entièrement comprise.

Malgré tous les parallèles qui ont été identifiés pour ses phases ou ses composants individuels, avec le recul, il est maintenant clair que Mucking avait une séquence-densité à nulle autre pareille. Il ne nous reste plus qu'à espérer qu'avec la publication de ces volumes, nous aurons dans une moindre mesure rendu justice à l'accomplissement et à la persévérance dont ont fait preuve les Jones sur cette terrasse balayée par les vents au bord de la Tamise.

Traduction Annie Pritchard
17-08-2015

Zusammenfassung

Mucking war eine Ausgrabungstätte wie keine andere. Unter der Leitung der unermüdlichen Margaret Jones (und ihres Ehemanns Tom) wurde hier unter Beteiligung tausender freiwilliger Helfer zwischen 1965 und 1978 nahezu ununterbrochen gegraben und letztendlich über 18ha untersucht. „Totale Archäologie" und eine 100-prozentige Ausgrabung der unzähligen Befunde war das Ziel; das gewaltige Ausmaß der von ihnen in Angriff genommenen Unternehmung wird durch die Statistik bestätigt: mehr als eine Million Funde und 1145 Bestattungen, und dazu annähernd 400 identifizierte Strukturen. Der hier vorliegende Prähistorische Band markiert (gemeinsam mit dem Teilband, der die römische Periode abdeckt) den Abschluss der Publikationsserie der Grabung. In ihm werden nicht nur die archäologischen Ergebnisse des Fundplatzes vollständig dargestellt, sondern es wird auch – unter Zuhilfenahme des umfassenden Quellenmaterials der Grabungsdokumentation – die Ausgrabung selbst in ihr historiografisches Umfeld eingeordnet. Zur eingehenderen Untersuchung dieser Sachverhalte finden sich in jedem Kapitel Exkurse, u.a. eine Würdigung von Margaret Jones und dem Vermächtnis von Ausgräberinnen des 20. Jahrhunderts (den „beeindruckenden Frauen" von Anwen Cooper und Julia Roberts) sowie Interviews mit Erinnerungen von Mitgliedern des Grabungs- und des Auswertungsteams.

Dank der intensiven Ausgrabung des Fundplatzes, und der damit einhergehenden sehr großen Anzahl von Streufunden, lässt sich die Abfolge seiner vormittelbronzezeitlichen Nutzung detailliert kartieren und es können selbst die vorangehenden neolithischen, Grooved Ware- und becherzeitlichen Schwerpunkte identifiziert werden. Die mittleren Jahrhunderte des 2. Jahrtausends v. Chr. wurden Zeugen der Errichtung von acht relativ kleinen Grabhügeln; im Anschluss daran folgte ein ausgedehntes, mittelbronzezeitliches Flursystem, dessen zugehörige Besiedlung im nördlichen Viertel der Grabungsfläche nachgewiesen wurde.

Während der späten Bronzezeit war die Besiedlung der Terrasse von Mucking offensichtlich wesentlich ausgedehnter. Dies wird auch durch das aus konzentrischen Ringen bestehende South Rings-Grabenwerk eindrucksvoll verdeutlicht. Obwohl in erster Linie ein befestigtes Gehöft (mit Hinweisen auf Metallverarbeitung und wohl den Salzhandel kontrollierend), scheint es später, zusammen mit dem unmittelbar nördlich des Grabungsareals gelegenen North Ring, eine Rolle in Massenzeremonien gespielt zu haben.

Mit mehr als 100 Rundhäusern, und mit vier großen Siedlungsanlagen entlang der Terrasse, war Mucking während der gesamten vorrömischen Eisenzeit kontinuierlich besiedelt. Nichtsdestoweniger war es, aufgrund zahlreicher Umstände, schwierig die „späte" Siedlungsphase herauszuarbeiten, und diese Analysen, die eine eingehende Auswertung der Siedlungskeramik erforderten, sind nun Teil der „Geschichte" des Fundplatzes. Sowohl die Rundhaustypen als auch die Einfriedungen dieser Periode weisen eine bemerkenswerte Variationsbreite auf. Zu den wichtigsten Vertretern der Einfriedungen zählt die North Enclosure, die eine bemerkenswerte runde Struktur aufwies und in der sich qualitativ hochwertige Metallgegenstände fanden (neben Hinweisen für eine auf Metallverarbeitung spezialisierte Funktion eines der benachbarten Rundhäuser).

Zweifelsohne war das Erkennen (und die Artikulierung) der tatsächlichen Funktion der Bestandteile des späteisenzeitlichen Platzes (*The Plaza*) eines der wichtigsten Ergebnisse des derzeitigen Auswertungsprogramms. Auf einander gegenüberliegenden Seiten von miteinander verbundenen, quadratischen Hügeleinfassungen flankiert, mit einer außergewöhnlichen, nahezu straßenähnlichen Aneinanderreihung von Vier- bis Neun-Pfostenspeichern entlang der westlichen Längsachse – und später zu einem großen, rechteckigen umzäunten Bereich vereint – war dies offensichtlich ein bedeutender zeremonieller Komplex. Die große Anzahl von Pfostenspeichern weist auf großmaßstäbliche, zentralisierte Getreidespeicherung hin, die wohl für den Export bestimmt war. Darauf sowie auf die Fundkeramik und die eindeutig untereinander verbundene Anordnung der quadratischen Hügel basierend wird hier eine direkte Verbindung mit der Region Champagne in Frankreich postuliert. Dies spiegelt den Charakter der sozialen Eliten dieser Zeit wider, und viele der spät-eisenzeitlichen Komponenten des Fundplatzes beeinflussten seine Nutzung während der frühen Römischen Kaiserzeit.

Das letzte Kapitel des Bands enthält einen Rückblick von Tim Champion, der u.a. die Vorgeschichte des Fundplatzes mit neuesten Ergebnissen aus Kent vergleicht (zusätzlich zu Stephen Rippons Übersicht zur Nutzung der Marschregion in Süd-Essex während des Mittelalters und der nachfolgenden

Perioden) und, abgesehen von der Behandlung solch bedeutender Themen wie Kontakten mit dem Kontinent, Akkulturation, Siedlungskammern und der Manifestation sozialer Macht in der Landschaft, auch einen periodenübergreifenden Überblick über Muckings Langzeitentwicklung bietet. Dementsprechend enthält es Zusammenfassungen sowohl der romano-britischen als auch der angelsächsischen Phasen des Fundplatzes und präzisiert die im römischen Band aufgestellte These, dass die angelsächsische Besiedlung Muckings sehr früh erfolgte; dies geschah sicherlich im frühen 5. Jahrhundert, wenn nicht gar im späteren 4. Jahrhundert n. Chr., aller Wahrscheinlichkeit nach unter der Ägide der lokalen romano-britischen Gemeinschaft.

Der außergewöhnliche Charakter von Muckings Besiedlungsabfolge und seine einzigartigen Qualitäten als „Ort" werden in dem Band wiederholt herausgestellt: auf einer erhöhten Kiesterrasse gelegen und von Flussmarschen flankiert. Abgesehen von seiner generischen Lage im Themse Mündungsgebiet, bot sich dort – und nur dort – ein ungehinderter Ausblick entlang des Unterlaufs und der Mündung des Flusses, und im Endeffekt nichts zwischen dir und dem Kontinent. Es werden Argumente für die These vorgebracht, dass Muckings Besiedlungsabfolge (und seine Bevölkerungsdichte) ab der späten Bronzezeit abhob und „besonders" wurde. In der Tat suggerieren der Charakter und die Schnittstellen seiner späteisenzeitlichen/romano-britischen und angelsächsischen Nutzung eine quasi-historische „Spezifität" deren Komplexität vermutlich niemals vollständig verstanden werden wird.

Trotz all der Vergleiche, die sich für seine individuellen Phasen/Komponenten finden ließen, wird nun im Nachhinein klar, dass Mucking eine Dichte an Besiedlungsabfolgen wie kein anderer Fundplatz aufweist. Es bleibt nur zu hoffen, dass den Errungenschaften und der Ausdauer der Joneses auf der windigen Themse-Terrasse mit der Publikation dieser Bände wenigstens ein bisschen gerecht geworden ist.

Übersetzung: Jörn Schuster

The surface of England is *a palimpsest*, a document that has been written on and erased over and over again; and it is the business of the field archaeologist to decipher it (O.G.S Crawford, 1953. *Archaeology in the Field*, 51; emphasis added).

He who seeks to approach his own buried past must conduct himself like a man digging. Above all, he must not be afraid to return again and again to the same matter; to scatter it as one scatters earth, to turn it over as one turns over soil. … *It is undoubtedly useful to plan excavations methodically. Yet no less indispensable is the cautious probing of the spade in the dark loam*. And the man who merely makes an inventory of his findings, while failing to establish the exact location of where in today's ground the ancient treasures have been stored up, cheats himself of his richest prize. In this sense, for authentic memories, it is far less important that the investigator report on them than that he mark, quite precisely, the site where he gained possession of them. Epic and rhapsodic in the richest sense, genuine memory must therefore yield an image of the person who remembers, in the same way a good archaeological report not only informs us about the strata from which its findings originate, but also gives an account of the strata which first had to be broken through ('Excavation and Memory', Walter Benjamin *Archives*, SW 2:2, 576l; see Marx *et al*. 2007; emphasis added).

Chapter 1

Introduction
Landscape and Archival Palimpsests

Set against the background of *A Matter of Time*'s call to arms concerning the threat posed by gravel quarrying to the archaeology of Britain's river valleys (RCHM 1960), everything started with St Joseph's 1961 aerial photographs of the area (Fig. 1.1). Published in *Antiquity* in 1964 in relationship to the Dorchester Rings (together with Rudston, Yorkshire's vaguely comparable 'double-circle'), St Joseph interpreted Mucking's concentric circular enclosure as a Neolithic henge. The paper concluded by noting that on-going gravel workings were visible in the image's lower left corner and, given their progress since first flying the area in 1959, that the monument should either be saved or carefully investigated (St Joseph 1964, 218; see also Riley 1987, 96–8 and in Clark 1993, 23–5 concerning Mucking's cropmarks).

Accordingly, the cropmark complex was brought to the notice of the Ancient Monuments Section of the Ministry of Public Building and Works with the aim of scheduling 40 acres. Although unrealised, this was sufficient to prompt the excavations that commenced in September 1965. Progressing northeastwards with little interruption, the fieldwork was to continue until 1977 and, eventually, extend over some 18ha (there also being a brief reprise in the following year to deal with the North Ring-area; see below). With upwards of 5000 participants involved over the years (many from overseas), this was rescue archaeology *par excellence*, and the staggering scale of Mucking's excavations is told by its gross statistics. Aside from eight round barrows and a Bronze Age fieldsystem, more than 110 Late Bronze/Iron Age roundhouses were recovered and, interred within formal cemeteries associated with settlement compounds, were some 170 burials of the Romano-British period. Perhaps most important was the scale of its Anglo-Saxon occupation; accompanied by at least 57 post-built 'halls', more than 200 sunken-feature buildings or *Grubenhäuser* were excavated, as were also some 800 contemporary burials.[1]

With the double-circle enclosure – the South Rings – proving quickly not to be of Neolithic date, but rather of later prehistoric attribution (initially thought a 'mini' Iron Age hillfort and only later shown to be Late Bronze Age), Mucking's Anglo-Saxon archaeology quickly dominated the project's agenda. Related by its excavator to Continental folk migrations after AD 400, the latter phase came to determine the site's setting and from the early years of the project its location maps were shown in relationship to the adjacent North Sea Coast countries (Fig. 1.10.3; Jones *et al*. 1968, fig. 1).

Of its more immediate setting, as shown on Figure 1.2 the site extended along the Boyn Hill Terrace between 29–34m OD. Along its eastern margin, the ground drops steeply (where the terrace's gravels are covered by brickearth) down to the marshes and flats alongside the Thames (see Fig. 4.87 and Carreck's outline of the area's geology in Clark 1993, 26–31, fig. 3; see also Murphy, Chap. 2 and Rippon, Chap. 6, below). Its strategic situation – near a low natural crossing point of the Thames, and at the point where it turns markedly southwards and begins to narrow from its broad estuary mouth – was crucial; literally, at the start of the river *per se* and the 'gateway' into southern Britain:

> This is a place which would naturally suggest itself as landfall to travellers up river, whether traders, immigrants, or invaders, whether from south-east coastlands or from the Continent (Jones *et al.* 1968, 212).

Yet, along this stretch of the Thames many locations fulfil these broad criteria and where exactly 'the gateway' – like *the river* (*vs*. its estuary) – begins and ends is not absolute. To be frank, set *c*. 3km back behind the river proper would not seem an ideal strategic locale; for settlement perched on a 30m-high escarpment immediately above marshland and estuarine flats, access to wetland resources may have been as much an attraction as 'strategic' concerns.

That said, as will be explored in this book's final chapter, with its view-sheds along the river and the potential for observing arrivals from the Continent, *Mucking's location was unique*. Indeed, a theme of our final chapter is that the dynamic sweep and historicist character of the site's original interpretative framework has now – after intervening decades of paradigms focused on insularity and continuity – in some respects, again proven relevant in the light of its Thames Gateway locale and the demonstration of past cross-channel connections.

From the outset it should be stressed that in covering Mucking's background, excavation/recording techniques and post-excavation history, portions of what appear in this chapter are a 'twice-told tale' and have been summarised before (see Clark 1993 and Hirst & Clark 2009). Yet, as befitting books appearing in a series entitled *Historiography and Fieldwork* (see below), in many respects our concerns and 'take' differ considerably. This is especially true of our focus on the site's archival sources – in other words, 'land-into-text' – and the nature of archives generally and historically contingent interpretations. Issues of excavation precedent and expectations are crucial for understanding Mucking, and these run almost as a refrain within this volume. A 'comparative technique', involving long-accrued parallels, sits at the heart of almost all archaeological practice (see e.g. Evans 2012 further to this theme). Although now readily taken for granted, in order to understand Mucking's approaches and explanatory framework, it has to be appreciated what it was to do fieldwork at a time when there was so little direct comparative context and the challenges that entailed (i.e. so few other sites had then been exposed to anything like a similar scale). To do the Joneses any justice, these matters need to borne in mind throughout.

Total Archaeology

Often harking back to Mucking's discovery through aerial photography, while extolling the virtues of that technique, at the same time Margaret repeatedly emphasised the need to actually dig the sites/landscapes that it revealed. She stressed the surprises that excavation alone threw up and was obviously wary that a 'school' of cropmark-enclosure morphology could over-ride the need to actually dig them (e.g. Jones 1972a).

The original aim was for 100% excavation of Mucking's fill-deposits, though, in practice *c.* 75% was generally achieved (Figs. 1.3–5; see Fig. 4.5 and Clark 1993, fig. 5). While by today's low-density standards this seems extraordinary, it was, for example, achieved at Dragonby (Fig. 1.7; May 1996), and even Fengate in the 1970s was very intensively excavated (Pryor 1980a). There was then, obviously, little notion of formalised site sampling procedures and, rather, maximising finds retrieval appears to have been the guiding factor: a logical goal at a time when many regional artefact typologies were still being established. 'Rarity value' may well have also been influential. Despite the fact that aerial photography was beginning to suggest, at least locally (i.e. on gravels), how extensive sites were, there was very little concept of the actual density of pre-Medieval settlements across much of southern Britain. With far fewer sites known (and expected), the loss of any – and even portions thereof – would clearly then have been held to be a far greater loss than today. Nonetheless, the greater Mucking landscape had obviously seen considerable post-War destruction as wrought by industrial and housing estates, as well as brickearth pits and gravel quarries, with little or no archaeological recording; the site, thereby, presented an opportunity to rectify matters.

Mucking saw one of the first applications of the term 'landscape palimpsest' in British archaeology (with Crawford 1953, 51 seemingly marking its first usage; see Bowden 2001, 42–3). Occurring in a 1968 *Panorama* interim (i.e. the *Journal of Thurrock Local History Society*) and, thereafter, featuring in the title of a paper five years later (Jones 1973), this implied that its landscape features were the accumulation of multiple phase-usage and not the relic of a single horizon. Certainly, the usage of this term was without any manner of 'knowing' textual metaphor-reference (i.e. 'over-writing land'), 'erasure' or 'time perspectivism' (e.g. Bailey 2007). What constituted the 'landscape' portion of this description is rather what counted – a sense of *sites/monuments without borders*:

> It would be well to consider the nature of such an extensive 'ancient monument' as the forty acres of the Mucking crop mark sites. In the first place, it is an area and not a finite building site or earthwork, such as a monastery or a Bronze Age barrow. The knowledge of its limits is defined only by the extent of the crop marks themselves. This is clear when one traces the crop marks of boundary ditches. Both west and east along the gravel terrace, and also down its slope, ditches continue beyond the photograph. In the same way that such a monument has no clear boundaries in space, so does it lack precision in time. Crop marks can develop over a modern sheep burial in the same way as they do over a Bronze Age pit. These crop marks show then not just one landscape, but *a palimpsest of landscapes* (Jones 1968, 36; emphasis added).

As, in effect, the project's main conceptual/interpretative background, this should caution us against over-intellectualising Mucking. It was framed by the abiding rescue archaeology ethos of the 1960–70s, but actually anticipated the foundation of RESCUE by seven years (of which the Joneses were founding members).[2] As opposed to, for example,

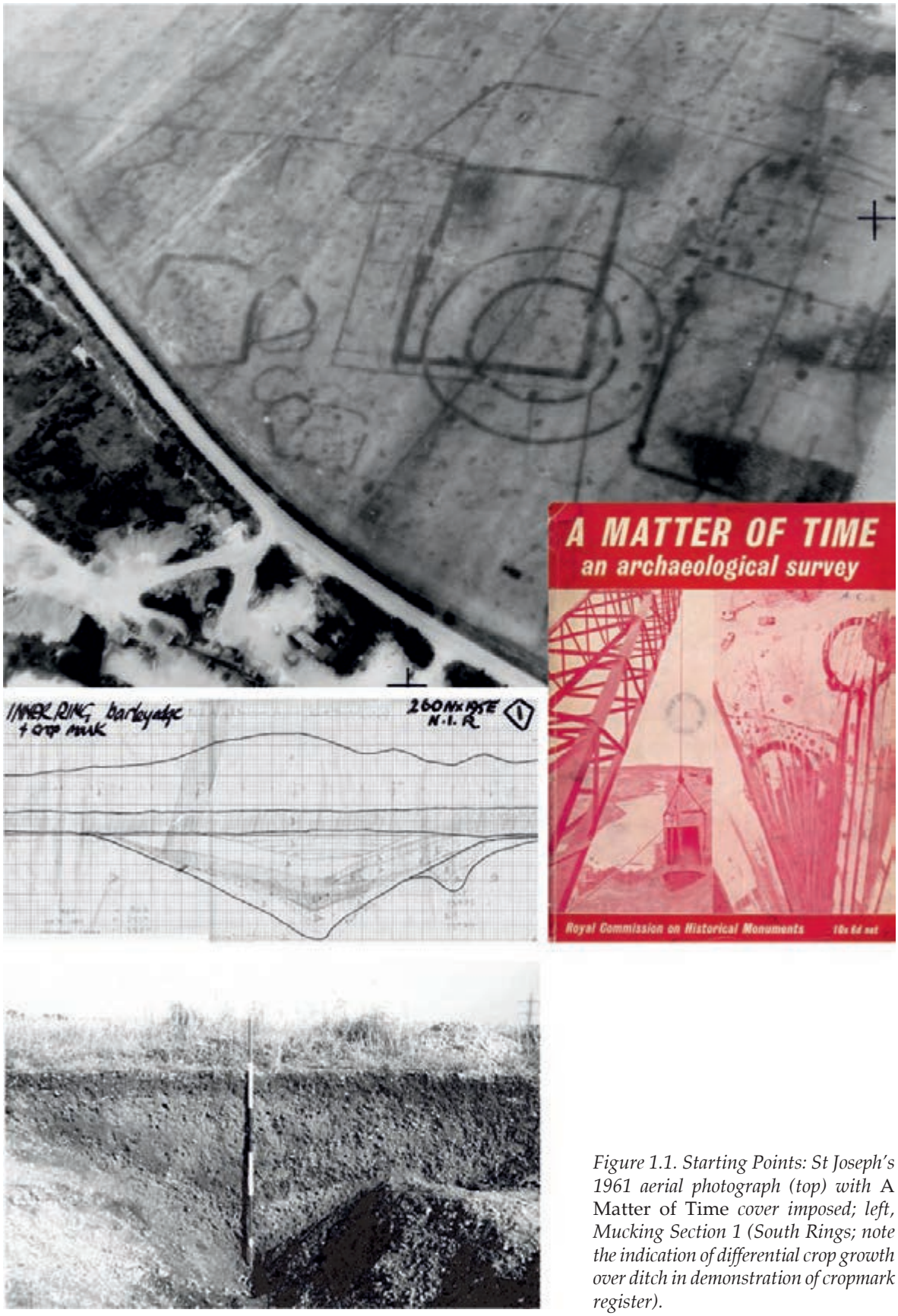

Figure 1.1. Starting Points: St Joseph's 1961 aerial photograph (top) with A Matter of Time *cover imposed; left, Mucking Section 1 (South Rings; note the indication of differential crop growth over ditch in demonstration of cropmark register).*

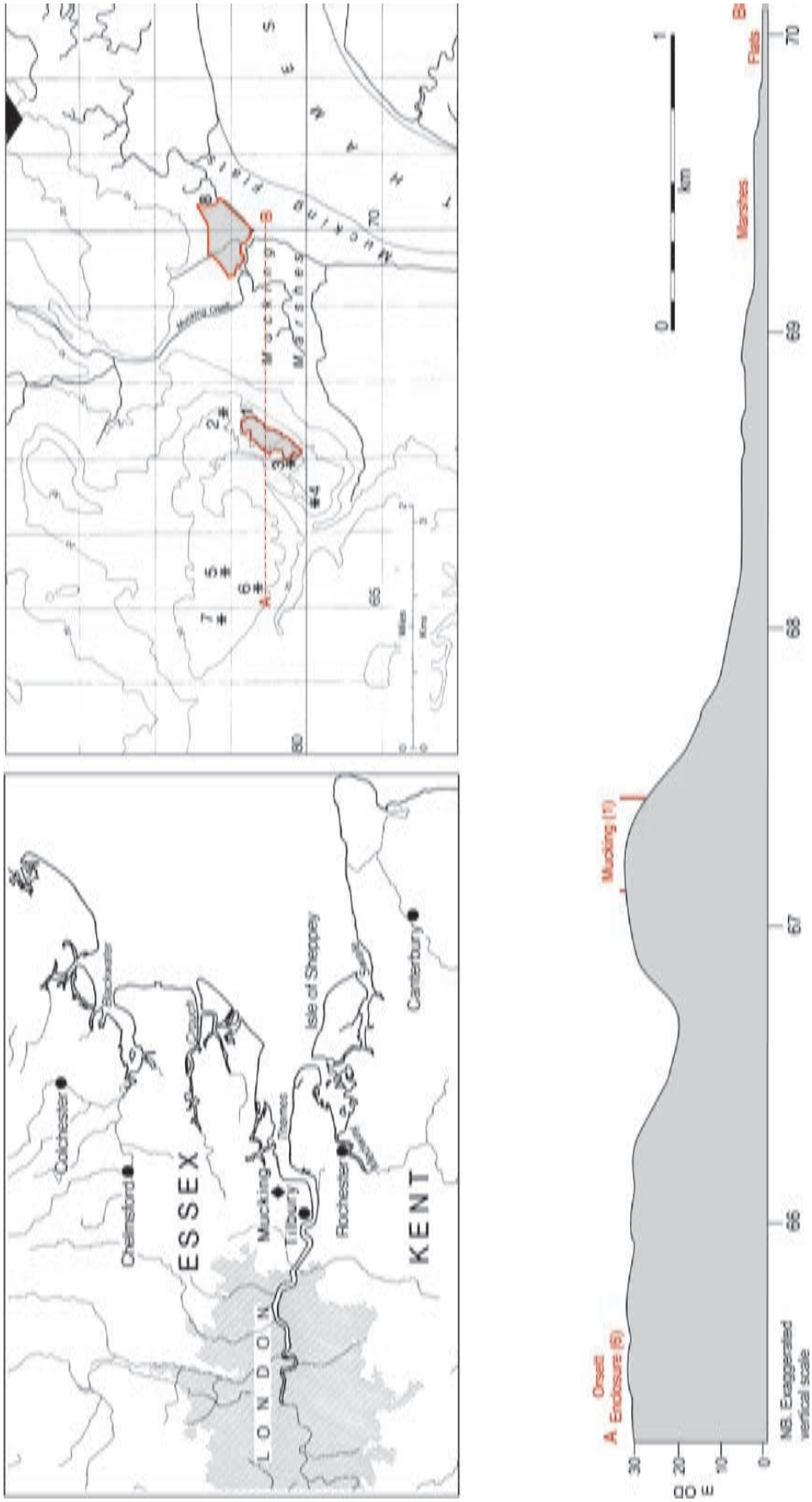

Figure 1.2. Landscape profile (with exaggerated vertical scale; below) and location map: 1) Mucking excavations; 2) North Ring; 3) Linford; 4) Rainbow Wood; 5) Orsett 'Cock'; 6) Orsett causewayed enclosure; 7) Rectory Road, Orsett; 8) Stanford Wharf/London Gateway Compensation Site A (after Clark 1993, fig. 2, with additions).

David Clarke's use of the phrase 'Total Archaeology' in relation to his highly ambitious Great Wilbraham investigations (also having over-arching aims resting on minimal infrastructure; see Evans *et al*. 2006), in the case of Mucking it was simply considered the appropriate response to the scale of the site's destruction: 'total destruction warranting total excavation'.

Otherwise, and not surprisingly for the time, Mucking was essentially interpreted within a cultural-historical paradigm, with long-distance trade, 'folk movements' and, for its Iron Age, transhumant shepherds, providing explanatory mechanisms. Perhaps reflective of her background in geography (see below), from the project's early days Margaret was much given to large-scale mapping, plotting the wider spread of the site's find-types (e.g. Jones 1972a), and on more than one occasion cited the importance of Fox's distributional studies (Fox 1923). As has been discussed elsewhere (e.g. Evans 1987), such dynamics were, of course, also logical at a time when there had been relatively little excavation: without recourse to *movement*, how else would you join up far-flung distribution dots?

In the case of Mucking this emphasis had a greater resonance due to its 'gateway/frontier' situation, especially in the light of the scale of its Early Anglo-Saxon presence. Yet, this approach to the site's sequence coincided with a sea-change in archaeological interpretation, with the publication of Grahame Clark's renowned 'anti-invasionist' paper occurring in 1966 (see Chap. 4 further to this theme in relationship to the project's 'cognitive map'; Fig. 4.2). The same era also saw the early impact of Processual/New Archaeology. Though David Clarke's Beaker studies were cited in relationship to Mucking's burials of the period, early papers by, for example, Binford – calling for more explicit methodological direction and problem-orientation (e.g. 1968) – were not.[3] This, of course, is not at all surprising and such approaches really had no impact in Britain until the latter half of the 1970s (e.g. Cherry *et al*. 1978). Margaret was, nevertheless, to prove quite intractable in her 'anti-theoretical' stance. As outlined in the recent *Fengate Revisited* volume (Evans *et al*. 2009, 250–2), she took extreme umbrage at Pryor's overtly problem-based and methodologically driven approach to excavating Maxey (Pryor 1980b).

Margaret was clearly more concerned with matters of 'dirt archaeology' – questions of excavation/recording methodology and site formation processes – as well being fully committed to *the popularisation of fieldwork*. Aside from the regular issue of local society interims and notes (even throughout post-excavation), much newspaper and television coverage, public lectures and local displays, the latter had expression in the site's postcard series (Fig. 1.16 showing just one of the four that were issued).

The Joneses were certainly not, however, insular in their approach to Mucking. Although like many of their generation and background they were not well travelled, in 1961 they had apparently accompanied Higgs to survey Greek Palaeolithic sites (Elsdon 1997, 78). They had professional ties with Continental scholars, touring Denmark and Holland in search for the homeland links of Mucking's Saxons (*ibid*. 79), and Margaret even published a summary of the site's pottery of that date in a Dutch journal (Jones 1969; see also 1978c).[4]

Mucking's archives also reflect a commitment to the burgeoning archaeological science of the day. This arose through close working with the Ancient Monuments Laboratory and also the opportunistic courting of specialists. The site, for example, saw early resistivity trials (Fig. 1.7) and there was off-site survey to retrieve clay samples to test against its briquetage (see Barford & Mainman, Chap. 3). Similarly, pottery was submitted for neutron activation analysis and correspondence files show that Margaret had contacted Dutch colleagues who had worked with pottery diatoms to establish whether their clays were saline (02/08/79; see also Jones in Clark 1993, 9). The excavations also included an experimental component. Pots were made by students from the local brickearth clays (and were apparently test-fired in kilns) and, in relationship to what might be considered the overly wide span of roundhouse roofs, there is a citation that this was being addressed through 'practical experiment' (Jones & Jones 1975, 141–2).[5]

In contrast, the site's economic data was not greatly prioritised. This is not at all surprising, nor uncommon at the time; after all, the project's inception predated the call to arms of the palaeo-economy 'school' by some seven years (Higgs 1972). Mucking's bone preservation was certainly very poor. This was true of both its human burials, which usually only survived as ironpanned casts/stains, and also its animal remains; of the latter, only some 10,000 pieces were apparently recovered. Although a great number of soil samples were collected (934), it would seem that the carbonised grain from only 25 was ever submitted to the Ancient Monuments Laboratory for analysis and that little flotation was actually attempted. This was not at all unusual for the time and it is clear that they were, instead, essentially relying upon *in situ*/'macro-observation' of burnt plant remains and, otherwise, their impressions within fired clay and pottery (see van der Veen in Hamerow 1993, 80–1); specific finds categories would also provide a basis to infer economic activities (e.g. spindlewhorls and loomweights). Against all this, it seems extraordinary

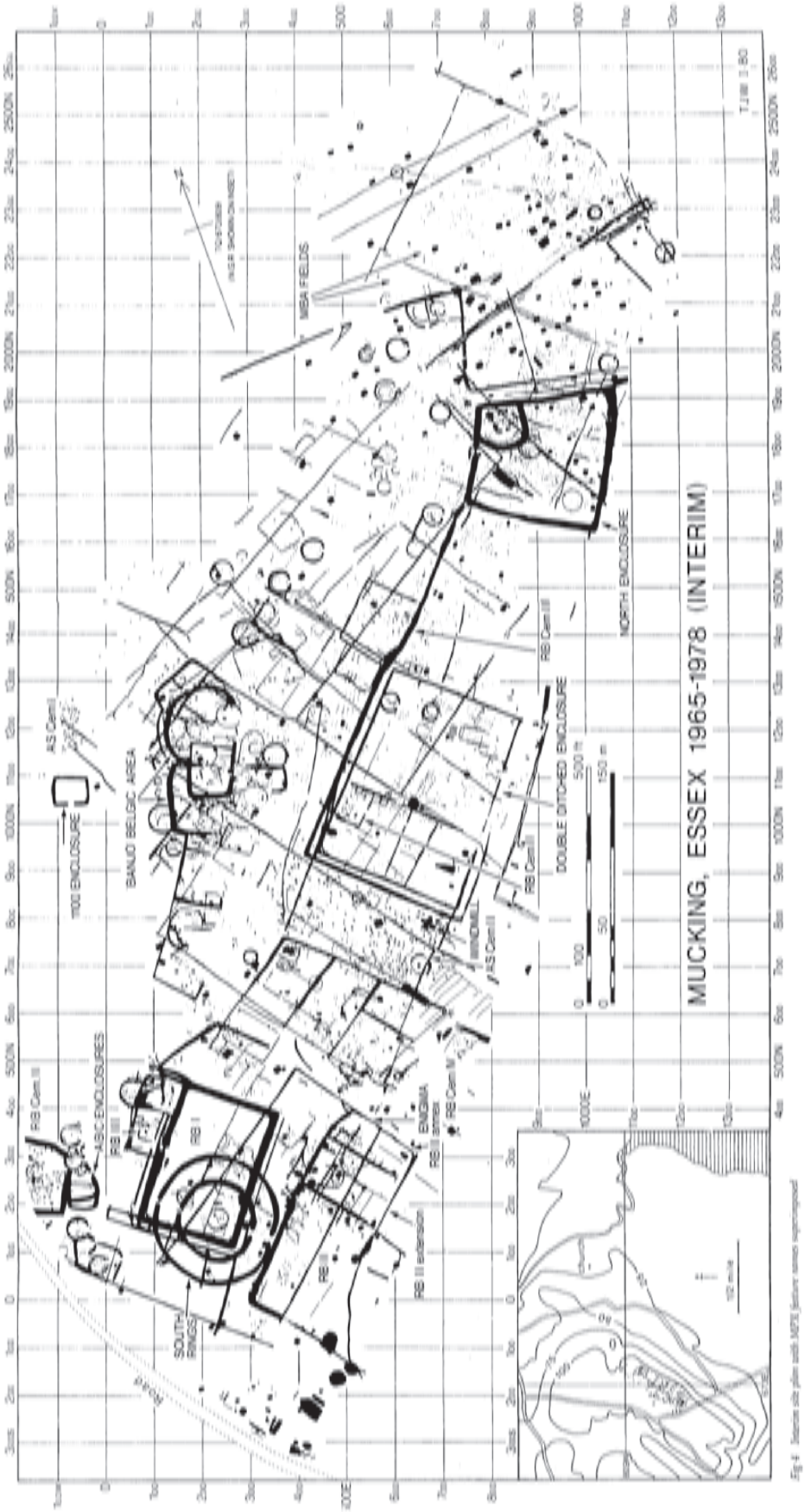

Figure 1.3. Site plan, 1980 (from Clark 1993, fig. 4).

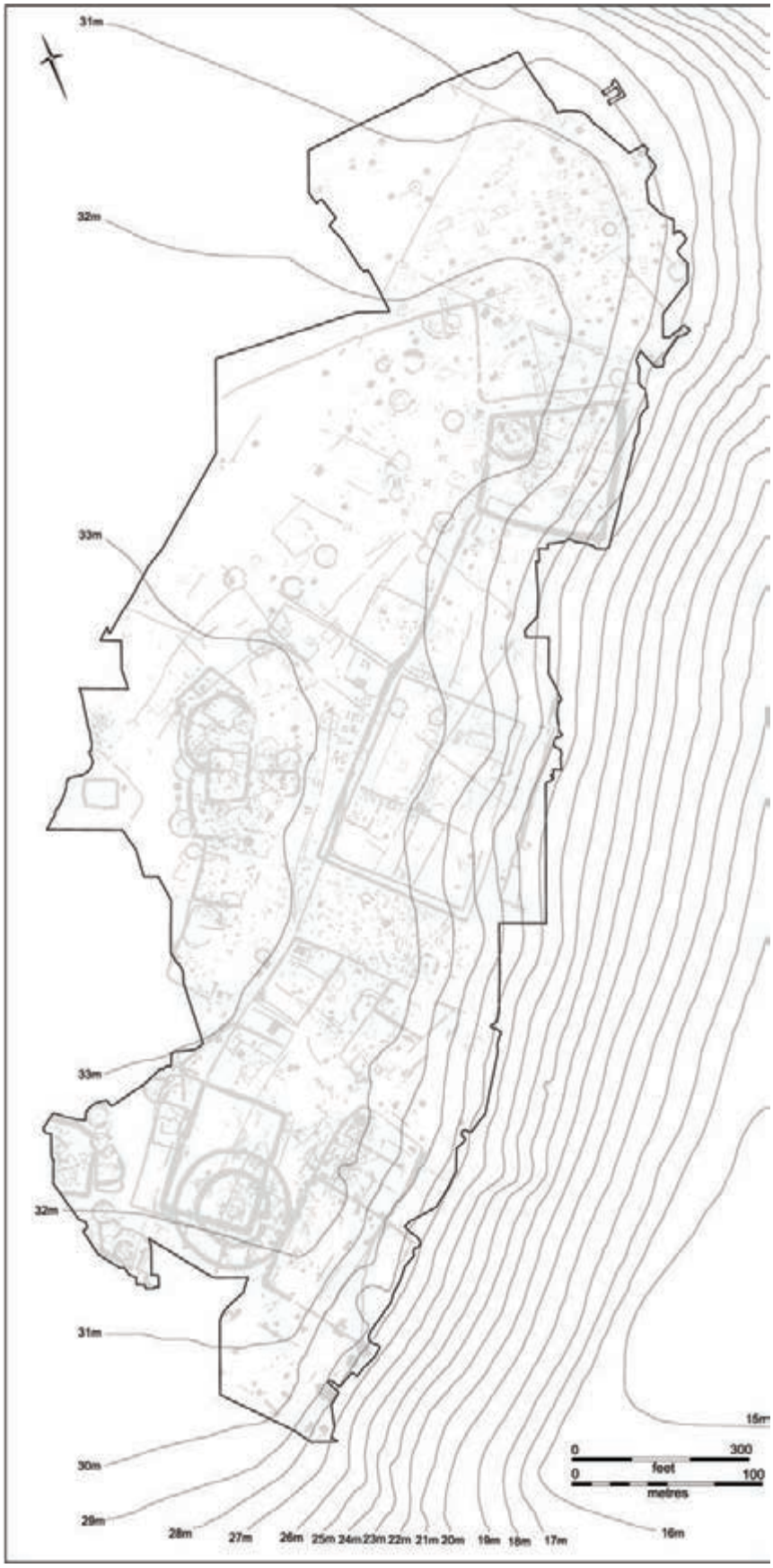

Figure 1.4. Digital site plan and contour map.

Figure 1.5. Total Archaeology: The Working Face-edge: left, looking down the 'Double Ditch Enclosure' line and, below, the 'Belgic Banjo' Area (see also Fig. 4.58).

Figure 1.6. (opposite) The Missing: With its area indicated in red on the 1973 interim plan (upper right), the 1969 aerial photograph (left; RAF V58/9640 004) shows an east–west swathe stripped across the central site (with the southern Belgic Banjo compounds top and the near-proverbial excavation campsite lower right; see Fig. 2.44) and is disturbing on a number of counts. First, with the quarry's drag-line progressing along the left/southern side – with almost nothing in front of it as yet excavated – it conveys just what it was they were up against and the relentless pace of the work (especially given the limited size of the campsite/site staff when compared to what needed to be dug). Secondly, the photograph also has the qualities of surveillance, as it allows comparison between what was in the ground and what was actually recorded and dug. Unfortunately, in reference to the Atlas' *Map Sheets 6, 8 & 10, it displays considerable discrepancies and these should inform any appraisal of the site's archaeological recovery. Among the 'missing' (i.e. unavailable for examination) are the circle of a roundhouse (1), a small sub-rectangular ditch-setting (possibly marking a Late Iron Age/Conquest Period building; 2), a curvilinear ditch relating to the Belgic Banjo's sequence (3) and, at '4' beside Roundhouse 51, possible further gully-set granaries (cf. RHs 56 & 58; see also Fig. 4.64); Mucking's 'missing' were, though, accurately expressed in the 1973 plan's blank-spaces and are further demonstrated in the site base-plan (lower right), with grey-tone indicating swathes of limited/non-feature recovery.*

4
RH51
3
2
Barrow
1
1

MUCKING
ESSEX
65-73
HECTARE
ACRE
0 100 200 FEET
0 10 30 60 METRES
INTERIM
MUI

0 100
metres

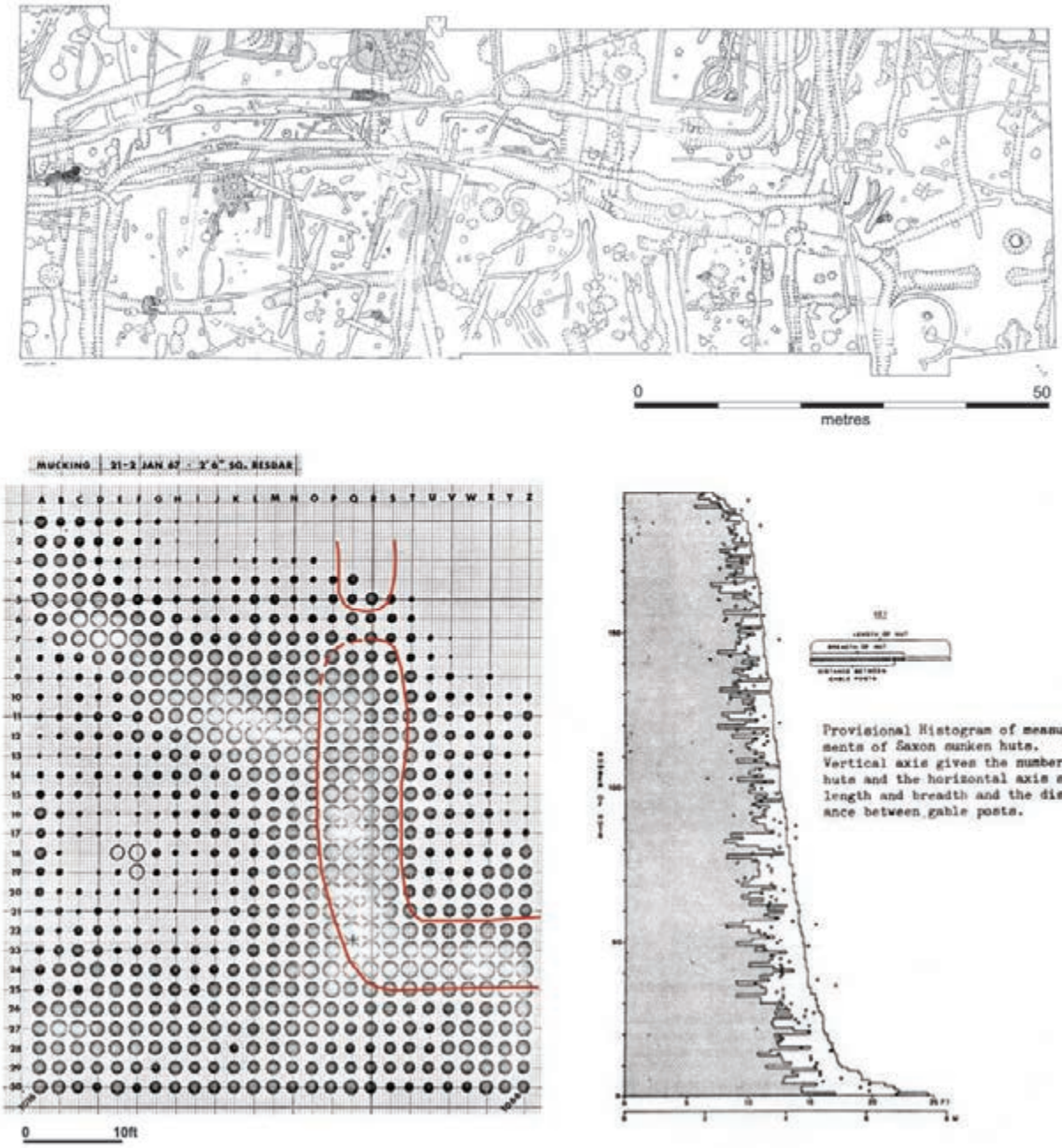

Figure 1.7. Dragonby, Lincs., Site 1 (May 1996, fig. 5.1) and, below, Mucking's 'science': resistivity survey plot (1967; left) and, right, histogram of Grubenhäuser *(Jones 1979). Another 'total excavation', the 1964–73 Dragonby, Iron Age and Romano-British settlement excavation (c. 0.7ha in total, of which Site 1 was its largest exposure; see May 1996, fig. 1.3) involved up to 80–100 volunteer staff per-season and cumulatively took 81 weeks (and cost, in total, £28,685, plus £170,000 for its post-excavation; ibid., 7). Also, like Mucking, seeing the application of much early-day archaeological science, as indicated on the plan it was also a 'complete' 100%-sample excavation. As such, it provides a further measure of total artefact-recovery rates: 14 human burials, eight Iron Age roundhouses, 10 Romano-British buildings, 157 brooches (89 Iron Age/Conquest Period), 249 coins (including 15 British),* c. *150,000 animal bones and 'about two tons' of predominantly Iron Age and Early Romano-British pottery (if assuming a mean sherd weight of 20g, this would equate to* c. *90,000 sherds). In many of its finds categories (as well as by area-density) its numbers were actually higher than Mucking's, but as far as can be established Dragonby's spatial control of finds by feature was not as precise as Mucking's.*

that, early in post-excavation, they had the site's many thousands of charcoal fragments identified and their distributions were among the first of its computer plots. (This was due to the immediate availability of an appropriate specialist; i.e. Grahame Morgan, see Chap. 3.)

In her penultimate *Panorama* note, 'Cereals at Mucking', Margaret overviewed the site's plant-use (1985a). Aside from discussing the pottery's grain impressions, the sheer scale of the site's quernstone assemblage, plus its raised Romano-British granary and corndriers, she also reviewed its four- and six-poster settings as Iron Age granaries (see, though, also Jones 1974, 190–1). In it she cited the evidence from recent Essex sites and, also, Gent's review on that theme in the *Proceedings of the Prehistoric Society* (1983). If not for the demise of her direct post-excavation involvement (see below), whether this recognition would have been sufficient to alter her earlier, Iron Age 'transhumant shepherds' argument cannot be known. It does, however, perhaps suggest something of a redirection of her cultural-historical approach, perhaps brought about by a greater awareness of the potential of a broader range of the site's data:

> *Although archaeology seems obsessed with finds and where they come from, the aim is essentially to shed light on how people lived in the past.* So it is unfortunate that the Mucking post-excavation project has to close before all the finds, facts and figures, so laboriously amassed in the 1965 to 78 excavation, can be studied in their many themes and aspects (1985a, 17; emphasis added).

On the whole, the kind of interpretative 'hotchpotch' that Mucking's sources attest to is arguably reflective of the general situation of fieldwork. On the one hand, sites are essentially a product of the milieu in which they are first conceived. In its scale, Mucking certainly showed far greater vision than most; the primary problem being that, over-extend a project's lifetime, and its approaches will invariably become outmoded. At the same time, there is also clearly the influence of personal contacts and seemingly random source-exposure, plus the changing whims of central state finance (the latter being particularly exasperated by project 'over-duration'). As further outlined below, for Mucking the impact of the 1975 Frere Report had the greatest consequences and, leading from it, the recognition of the possibilities of intra-site distributional analysis through the site's computing during the later 1970s.

Framing Context

It is necessary to establish a sense of the project's 'framing context'. Before exploring the era's broader excavation background, we need first to outline that of the Joneses themselves and, for this, we are fortunate to be able to draw upon Shelia Elsdon's appreciation of Margaret and Tom which appeared in her Sleaford volume (Elsdon 1997, 77–80). Studying geography at Liverpool University, it was through W.J. Varley, who taught there and was an amateur archaeologist, that Margaret was introduced to digging and went on to volunteer at a number of sites (where she meet Tom Jones, a professional photographer and amateur fieldworker). Supporting herself though a variety of jobs – including roles as diverse as a Land Army administrator and cookery correspondent for the *Birmingham Mail* – it was apparently through participation on the O'Neil's annual excavations on the Scilly Isles (Beagrie 1989) that, from 1947 onwards, Margaret decided upon a career in archaeology. In this she was encouraged and later sponsored by Helen O'Neil, an employee of the Ministry of Public Building and Works (and excavator of the Park St, St Albans Roman villa site; 1945), and her husband, Bryan, who was Chief Inspector of Ancient Monuments in the 1950s (Wainwright 2000, 909 and Rahtz 2001b, 604). On behalf of the Ancient Monuments Branch, in 1957 and 1958 Margaret directed work at the Iron Age and Romano-British settlement at Stanton Low, a gravel pit beside the River Great Ouse in Buckinghamshire. While immediately publishing the results of the initial 1957 trenching season (Jones 1958), the much more extensive excavations of the following year only saw publication 31 years later (and then, not by herself: Woodfield & Johnson 1989). Similarly, though publishing to high standard the 1964 trench investigations at the Roman fort at Aldborough, West Riding (Jones 1971b), aside from brief interim notices, it was left to later researchers to issue the results of her main sites: Old Sleaford, Lincs. (1960–3; Elsdon 1997) and Roughground Farm, Lechdale (1957–65; Allen *et al*. 1993 and see also Jones 1978a and Darvill *et al*. 1986). This, in itself, is not particularly unusual. There was then generally minimal, if any, resourcing available for post-excavation and many practioners of that time accrued vast backlogs (see Butcher & Garwood 1994). In terms of Mucking, it does seem remarkable that she would embark upon such an ambitious enterprise with only limited post-excavation experience, but then everyone has to start somewhere (by the same token, Fengate was Pryor's first sole-directorial responsibility).

At Old Sleaford she had undertaken excavations across five main areas and, including further trenching, this amounted to *c.* 3150sqm (see Elsdon 1997, fig. 5). In the first season there, as was true of the main Stanton Low investigations (Woodfield & Johnson 1989, fig. 3), the site was dug using a Wheeler 'box-technique'; only in 1963–4 were larger area-exposures employed at Sleaford, first taking off the topsoil by machine (Elsdon 1997, 16). In respects, Margaret's 1957–65 Roughground Farm excavations were comparable. Progressing from a watching brief to a trenched wall-chasing exercise, the latter were thereafter expanded to provide localised area-exposure of its spectacular Romano-British villa, with topsoil being mechanically stripped by the quarry

company (Jones in Allen *et al*. 1993, 1–3, figs. 34, 36 & 37). Certainly, Margaret was held to be a very competent archaeologist and fieldwork director, and the quality of the reports later issued based on her archives attest to the standard of the recording systems she maintained.

Allied investigations, that variously lay 'behind', bracketed and were concurrent with Mucking, also need to be outlined. First, occurring immediately south of the main site, were the 1955 Linford Quarry excavations (Figs. 1.2.3 & 6.15; Barton 1962). Supported by the Public Ministry of Building and Works Ancient Monuments Branch, this was prompted by earlier findings of both quantities of Iron Age pottery and what appears to have been Roman kilns in the vicinity. The excavation techniques employed in the 1955 site are discussed below. Of its findings, aside from a series of Romano-British ditched enclosures and Early Iron Age pit/posthole clusters, a series of Anglo-Saxon *Grubenhäuser* (accompanied by contemporary pits and post-built structures) were recovered.

The second associated excavation, located *c.* 250m north of the main Mucking site, was the 1978–9 excavation of the later Bronze Age 'North Ring' (Fig. 1.2.2; Jones & Bond 1980 and Bond 1988). This involved controlled open-area excavation by the Central Unit over *c.* 2185sqm of the circle's eastern two-thirds and, also, conjoining salvage excavations undertaken by Margaret and Jonathon Catton (11,565sqm: Fig. 1.9). Across the latter, in addition to further prehistoric features, were even more Anglo-Saxon *Grubenhäuser* (see Jones in Bond 1988, 45–51). Aside from indicating that Mucking's 'palimpsest' extended much further along the Boyn Hill Terrace, these excavations are relevant in the evaluation of the respective merits of their diverse techniques. In the case of the North Ring's investigations, a high density of postholes were recovered within the 'controlled' area, with few such minor features surviving within the box-scraped salvage zone (Jones in Bond 1988, 46, fig. 45); as outlined below, differential machining depths also clearly affected Mucking's results.

Although its methodology was not detailed in the report, as far as can be established the earlier Linford investigations involved a rather sophisticated adaptation of the 'Wheeler-esque' box-excavation techniques to serve as a site-wide sampling grid (Fig. 1.8; Barton 1962, 57). Occurring over 165 × 335ft (*c.* 1.7ha), 4 × 4ft squares were hand-dug arranged along transects (consistently across the eastern three-quarters, with its western cover being more judgementally based; i.e. *ad hoc* 'ditch-chasing'). Based on the presence of features, a number of these were then variously expanded into trenches and larger open-area exposures. Finally, during the course of quarry-machined reduction, features were also recorded across the intervening unexcavated portions. The site, thereby, demonstrates the virtues of both hand-dug and machining techniques, and whereas Anglo-Saxon posthole structures were only recovered within the former, the Iron Age features were largely only found through the machine-stripping. Of the latter, Drury in fact cited Linford's findings in demonstrating that the region's Early Iron Age roundhouses were post-built (and 'un-ditched') and then employed its results to identify comparable settings on Mucking's plan (1978a, 45–6, fig. 2).

The last 'allied' site to take account of is the 1969–70 excavations at Gun Hill, Tilbury (Drury & Rodwell 1973). While lying some 2km southwest of Mucking, the interrelationship between the two is not only based on the character of its sequence and fieldwork conditions – extreme quarry-rescue of a major Middle/later Iron Age compound (also with Romano-British kilns and a Saxon *Grubenhaus*; Fig. 1.9) – which offers obvious parallels with Mucking, but that the work was undertaken by Paul Drury and Warwick Rodwell, both of whom worked with the Joneses (see, also, e.g. Potter 1974 as another Mucking 'off-spring', and Rodwell 1996 concerning the post-War history of the County's archaeology generally).

Also of immediate relevance was a spate of excavations during the 1970s within the neighbouring Orsett environs: its causewayed enclosure and subsequent settlements/burials (1975; Hedges & Buckley 1978), the Orsett 'Cock' enclosure in 1976 (Carter 1998) and, in 1979/80, the many sites investigated along the line of the Grays By-pass (Wilkinson 1988). Beyond these, one other, much more recent, adjacent site also deserves specific notice, that being Oxford Archaeology's 2008–9 Stanford Wharf

Table 1.1. Stripped excavation-area exposures (1964–83).

Regional		**National**	
Dragonby	0.7ha (1964–7)	*Durrington Walls*	2.2ha (1966–8)
West Stow	1.4ha (1965–72)	*Danebury*	1.2ha (1969–78)
Little Waltham	1.0ha (1970–1)	*Chalton Down*	1.9ha (1971–5)
Fengate	11.3ha (collective over *c.* 23.3ha; 1971–8)	*Gussage All Saints*	1.5ha (1972)
		Hambledon Hill	4.5ha (1974–82)
Spong Hill	1.4ha (1972–84)	*Claydon Pike*	3ha (collective over *c.* 40ha; 1979–83)
Highstead, Kent	3.7ha (1975–7)		
North Shoebury	5.7ha (1981)	*Burton Fleming*	0.8ha (1972, 1977–8)

investigations (London Gateway Compensation Site A; Biddulph *et al*. 2012). Extending over 44ha along the north side of Mucking Creek and the Thames mudflats (including one of Essex's 'Red Hills'; Fig. 1.2.8), its significance here is its complementary location down on the riverside marshes proper, off the terrace. Although excavations *per se* were limited to approximately a third of the area, in addition to watching brief monitoring throughout, they were accompanied by a programme of geoarchaeological sampling. For our purposes, the main result, which will feature in both this and the Roman volume, was evidence of Late Iron Age to Late Roman salt production (see, also, e.g. Drury 1973, 118–22 and Rodwell & Rodwell 1973 for earlier findings from the Stanford-le-Hope area).

As detailed in Chapter Six below, understanding of the site's landscape context has greatly benefited from the recent publication of the National Mapping Programme's aerial photographic results from Essex, which includes a Mucking area case-study (Ingle & Saunders 2011). Equally, and also further discussed in that chapter, have been a series of major Thames Bank-side projects in Kent, as well as the entire coastal/foreshore dimension that, post-Mucking, has been introduced into the region's archaeology.

Of Mucking's broader contemporary excavation background, Pryor's Fengate (1974–8) would have to feature as further demonstrating the application of 'mass' open-area machine-stripping. Also, as regards changes in fieldwork practices, are the development of single-context recording and matrix-analysis techniques. Arising in response to the challenges of deep urban sequences – both at Winchester and then, after experiments at Carthage, Cirencester and London (see e.g. Harris 1979, Roskams 2001 and Collis 2010) – the threat to Britain's urban archaeology was another, if not the prime, rallying cause of the Rescue movement. There were, nevertheless, a number of earlier attempts to move beyond notebook recording, of which Dragonby provides an example (May 1996, 20–1; see also Pryor 1984, app. 1 and Evans *et al*. 2009, 12–13 on Fengate's early attempts at computing).

The later 1960s and 1970s were marked by a series of milestone projects within the region. As, however, shown on Table 1.1, aside from Fengate, none were of a scale to rival Mucking, and this remains true even if the scope is taken to a national level. In the site's many interims, Margaret clearly promoted the notion that Mucking should be established as the 'type-site' for such large multi-period landscape exposures. Yet, aside from North Shoebury, Highstead (nr. Chislet, Kent), Fengate and a handful of others (Wymer & Brown 1995; Bennett *et al*. 2007; e.g. Pryor 1980a and 1984), few projects at the time followed the Joneses' lead. This mode of working did not become widespread until the 1990s, when *c.* 15ha+ sites began to be regularly tackled, with Heathrow Terminal 5 being the prime exemplar (Framework Archaeology 2006). With more readily available machining, most of the landmark excavations of the later 1960s/1970s were, instead, specific-phase cemetery-/settlement-focused and, in effect, they can be understood as starting to build the 'pattern book' of site-types. To be set against this, though, it needs to be recognised that great swathes of archaeological landscapes must then have been lost to quarrying and major construction works.

In terms of the archaeological infrastructure of the time, it is salient that even a 'textbook' site like Durrington Walls was done on a fairly shoestring basis and that its excavation involved large numbers of volunteers (Wainwright & Longworth 1971 and Wainwright 2000, 913). Similarly, undertaken 12 years later, Fison Way, Thetford (4.2ha) was dug using a youth unemployment scheme (Gregory 1991). This was also true of the 1975–7 Highstead Quarry work – a consciously 'Mucking-type' site – which was dug on very meagre resources (and only published 30 years afterward; Bennett *et al*. 2007, xxi). Indeed, apart from Fengate, funded by Canada's Royal Ontario Museum, while other candidates might be advocated, the first really 'formal' (quasi-) professionally organised rural landscape project in Britain would have to be the M3 motorway fieldwork of 1972–83. Though not involving any single large exposure akin to Mucking's (i.e. a series of single sites, each of which were the approximate size of Chalton Down or Gussage All Saints: e.g. Winnall Down and Micheldever Wood; Fasham & Winney 1991), collectively it was a programme on a vast scale and one propelled by a formal project design (Biddle & Emery 1973; see also Fowler 1979 for early motorway archaeology generally).

With Grimes' 1944 Heathrow excavations marking the earliest known example (*c.* 9740sqm; Grimes & Close-Brooks 1993, 308–9), the impact of the use of earthmoving machinery in archaeology, in terms of the scale of sites which could then be tackled, should not be underestimated (see Evans 1989b on earlier, non-machined open-area techniques; see also Richardson 1951 and Rahtz & Greenfield 1977 for other early machining applications). Yet, as with the application of any new technique, it was something that had to be learnt and experimented with to achieve 'the formula' (with availability of the right machinery being a governing factor). As a result, 'how to' manuals were issued (Pryor 1974). In general, Mucking's machining was provided by the quarry company, Hoveringham Gravels Ltd, with its overlying deposits being removed by box-scraper. For part of the site, however – presumably to maintain annual excavation-funding[6] – Margaret Jones persuaded the Royal Engineers to strip it (and

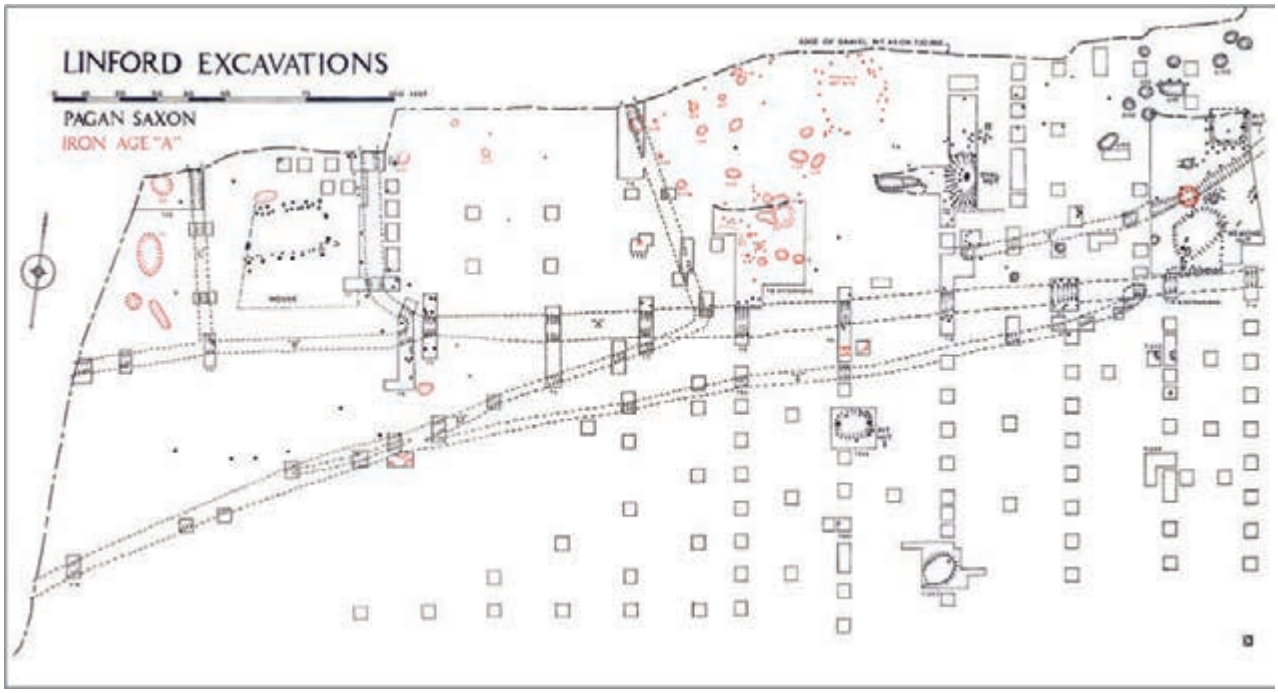

Figure 1.8. Allied Investigations (I): The 1955 Linford Site (after Barton 1962).

also had them contour-survey the site-area; Figs. 1.4 & 1.13).

In all this wing-and-a-prayer contingency, they did not always get things right; but then, whoever does? Reproduced in Figure 1.6, the interim plan of Mucking's exposure up to 1973 is significant for how it shows the site's marked 'absences': where its dense peppering of minor discrete features were not recorded.[7] The largely blank swathes variously reflect quarry haul-roads, where the stripping either went too deep and/or where there was only time for cursory salvage recording between stripping and gravel extraction. These limited/non-recovery portions are shown on a site-wide basis in Figure 1.6 (lower right), and they extend to over 4ha.[8] Indicating the time it took to adapt to the quarry's working methods over the southern pre-1974 part, these amount to at least a third of the overall area. While obviously severely compromising claims to 'total archaeology/recovery' and hampering interpretation across those portions of the site, this is perfectly understandable given the fieldwork's circumstances. Here, it is not so much a matter of bemoaning such loss as stressing *the sheer density of Mucking's features*. Certainly unparalleled at, for example, Fengate (aside from the limited area of the Cat's Water sub-site; Pryor 1984), even if taking into account the great landscape projects of the last 10–15 years, no other 'scaled' excavation has had feature densities approaching these (though West Heslerton's 7.5ha Site 1 of 1977–84 came close; see Powlesland 2011). It is these densities of pits and postholes, as much as anything, that must sit at the core of Mucking's long-term *settlement sequence*. As opposed to being able to readily characterise and roughly phase the site's more major cut features (e.g. wells, *Grubenhäuser* and kilns) and various ditched configurations (occupation compounds/'folds' and variously gullied roundhouses; see below), their attribution and articulation with the more obvious settlement settings has remained a crucial problem throughout. This is as true of the need to wed the site's Anglo-Saxon *Grubenäuser* with its 'halls' and pits as it is for the Iron Age roundhouses and four-posters (and pits). Indeed, this is even apparent in the 1978 North Ring's plan (Fig. 1.9), where only a minor portion of its array of pits and postholes were in anyway 'interpretable'. As is strikingly portrayed on Figure 1.19 (its thousands of unassigned postholes being further discussed below), this was evidently something that the Joneses were fully aware of and in the 1974 interim report, after enumerating the structures and postholes then recovered to date, Margaret Jones noted:

> The small number of structures plotted from the posthole scatters requires comment. Their total is deliberately conservative, first, because of the problems of isolating and dating posthole settings in a multi-period settlement, where the holes may contain no finds, indeterminate or residual finds, or undistinguished fills, and secondly, because of the reluctance to claim groups as buildings which may not be substantiated. It is not difficult to see pairs or even lines of three postholes in fairly dense scatters; they may, however, be more of a statistical hazard than of archaeological significance. But when

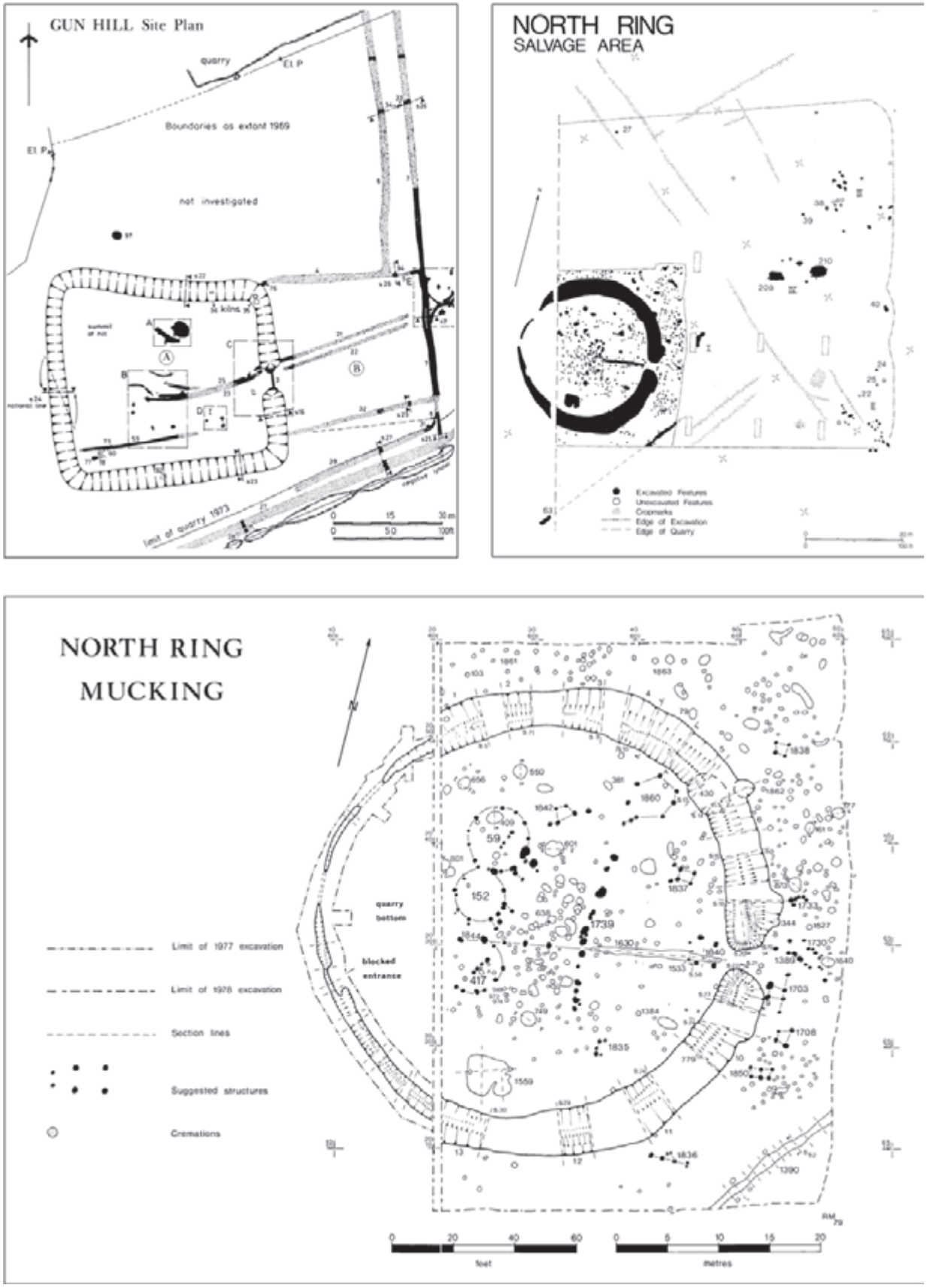

Figure 1.9. Allied Investigations (II): Upper left, Gun Hill, 1969–70 (Drury & Rodwell 1973, fig. 2); upper right and below, Mucking, North Ring, 1978–9 (Bond 1988, figs. 3 & 30).

TIMES IN THE FACE OF GRAVEL DIGGING

RACE TO WIN SECRETS OF ANCIENT SITES

M & J JONES = FROM A CORRESPONDENT—STANFORD-LE-HOPE, MAY 29 1966

Seven years after their recognition from the air, quarrying has begun to destroy ancient Essex sites. Th

of present day machinery. Fortun

with many

too slight to produce cropmarks. The greatest surprise was the discovery that the "pits" dotting the largest enclosure were actually graves. Of some 80, nine were cremations.

In date they apparently span the subsequent four centuries of the Roman period. This remarkable instance of continuity is emphasized by a Roman land boundary

1

MUCKING AUG 1976

Patterns of darker green in a field of
double ring (200ft. in diameter) and a rectangu
of smaller rings with attache square

Figure 1.10. Scrapbook Sources: set against the background of the site's 1966 Times *coverage (left; with 1973 and 1976 dig-team portraits) and one of the 1993* Atlas *plan-sheets (right, also with 'Notes for Excavators' imposed) are Margaret (1) and Tom Jones (2) in action; 3) Mucking-to-North-Sea-Coast location map (Jones 1968, fig. 5); 4) excavation of the Iron Age square barrows (see Chap. 4, 'The Plaza').*

North Sea
Mucking
Kent
NOTES FOR EXCAVATORS
ARCHAEOLOGICAL FEATUR
FIELD SURFACE
SOIL MARK
EXCAVATION CAMP
LORRIES
2
3
4

> excavation is completed, and the settlement foci and the orientation of different periods have been clarified, it is expected that many more postholes will fall into structural place. One could then legitimately indulge in what van Es so candidly calls 'granary making' (Jones 1974, 187).

The citation to the work of van Es at Wijster (1967) is salient, as a number of large-scale settlements had previously been dug on the Continent, with Feddersen Wierde or Köln-Lindenthal among the more obvious. These, however, were largely single-period exposures and lacked Mucking's dense multiple-phase complexity.

Before progressing, the North Ring's base-plan raises further issues and these will surface on more than one occasion in this volume. First, is the inherent ambiguity of its 'backgrounded' features. While a number of the site's identified structures appear rather suspect (e.g. [1389]/[1730] and [1842]), others still also seem apparent (a sub-rectangular setting in the northeast corner, with further roundhouses and a four-poster suggested by the posthole array adjacent to [1708] and [1850]). Second, is the manner in which the site has featured in recent spatial/social structure studies. In both Brück's 2006 'Fragmentation' paper and Parker Pearson and Richards' earlier 'Architecture and Order' contribution (1994, 50–1, fig. 2.6), it is the simple formality of the ringwork's plan that has attracted interpretative speculation (i.e. its aligned roundhouses and 'screen'), with its 'extraneous' features largely ignored. This is to the point that the later paper only really highlights the ringwork's entrance-adjacent cremation – omitting the enclosure's other two such interments (Brück 2006, fig. 4) – as it alone readily speaks. Sadly, it is almost as if academia now does not want too much site data. This is an ethos that can make one despair of the efforts it takes to disentangle an excavation's 'small feature' detail and even raises questions concerning the effort that archive generation/maintenance entails, as they seem to be so rarely consulted in favour of published sources (see e.g. Dixon 1986 and Jones *et al*. 2001).

Notebook Archaeology

If the world and research were logical it could be argued that the advent of landscape archaeology in Britain would have had no better starting point than digging, analysing and publishing such a dense 'palimpsest' as Mucking in its entirety. However much the expected norm of the day, given the project's limited resource base the attempt to do so shows remarkable audacity on the part of the Joneses. Yet, its burials, kilns and *Grubenhäuser* aside, the argument could be mounted that Mucking did not actually warrant such intense excavation due to its poor economic data – especially its bone preservation. This, of course, is an appraisal that can only be made with the benefit of hindsight and there would have been insufficient excavated precedent at the time to make such a judgement. It must, moreover, be appreciated that Mucking was *a project that grew* and, in trying to keep ahead of the damage wrought by the quarry, its scale was never envisaged (or planned for) from the outset.

The intensity to which the site was dug can be appreciated in Figure 1.5's photographs (remembering that the intervening baulks were also subsequently excavated). A pressing concern with such 'totality' is the risk of *pixilation*. Arguably a case of 'more being less', unless strictly controlling the daily fieldwork record there is an enormous risk of generating contradictory data, such as in the continuous distinction of ditch re-cutting sequences; certainly such inconsistency occurs within Mucking's archives. Indeed, producing this kind of record on a year-round basis (without seasonal gaps for checking), the in-field infrastructure required to successfully conduct such an ambitious programme would probably be beyond the resourcing of even most of today's comparable-scale developer-funded projects, let alone with whatever meagre funding was then available.[9]

The quarry's annual area-stripping 'rhythm' meant that, given the excavation intensity, they were often digging just in front of the machines. As is evident in Figure 1.5's lower image, there is something absurd about excavating the 'face-edge' enclosures to such a degree when the remainder of the exposed field had not been tested and there could be no anticipation of what problems lie ahead (see also Fig. 1.6).[10]

As emphasised in a recent project review (Barford 2011; see also 1995), Mucking's recording was perfectly reasonable at the time of the project's inception. Yes, over the course of the 1970s, with the advent of single-context recording it began to appear anachronistic – especially the use of imperial measurement – but, nonetheless, it was *a system*. Once it is recognised that the site's horizontal strata were ploughed-out, leaving only features cut into the gravel natural, then the use of specific grid coordinates to locate excavation interventions was a 'workable' basis of site enumeration. Admittedly, its application was not entirely consistent, so that postholes set within the interior of a roundhouse gully could, for example, be assigned their own number sequence. Yet, in reference to the plans, all features can eventually be distinguished.

Aside from the many thousands of site graphics, the basic record sits in the archive's 363 notebooks (Figs. 1.11–12), which were generally – but, again, not always – local to specific site-grid areas. Fills were essentially dug by arbitrary spits, ideally 3–6", with finds separated by their level-depth

(theoretically those from spits were meant to be sub-divided according to major soilmark distinctions) and 'exceptional' finds individually plotted. The site archives include a nine-page long 'Notes for Excavators'. As outlined therein, digging/recording procedures were meant to be standardised (though notebook recording was essentially undertaken by the area-supervisor alone) and accompanying cartoon pages depicted the range of expected features types and how, also, ditch sections were meant to be laid out (Fig. 1.10). While not particularly sophisticated, this also included a nomenclature of the site's common soil-types. In practice, however, much of the deposit recording is fairly perfunctory (e.g. 'black soil' or 'sandy fill').

In conjunction with the quadrant/segment co-ordinate-system allocations, numbers were meant to be serially assigned to a range of feature/structure types, with graves, *Grubenhäuser*, kilns and wells specified. This is significant as it reflects an inherently hierarchical 'type-based' approach to the site's archaeology generally. Indeed, if roundhouses, various post-built structures and barrows are added to this list, then in many respects these constituted the basic 'building blocks' by which its archaeology was addressed (see Fig. 1.20). Major compounds were specifically entitled (e.g. 'Belgic Banjo Area' or 'North Enclosure'; Fig. 1.3), but generally 'ditch dynamics' received less attention than is now common; instead, it was discrete *named* feature entities/types that were highlighted.

As well as containing much sketch notation, a number of the notebooks include drawings of significant finds. Similarly, the original finds catalogues (by category-type) were also extensively sketch-illustrated. While the generic finds categories from each 'intervention' were often not enumerated, 'featured' finds were serially numbered and usually drawn (e.g. feature sherds such as rims and bases, metalwork, as well as special flints and fired clay pieces; see e.g. Fig. 4.72). These were compiled during the course of excavation and would have assured a high level of finds 'feedback'. Indeed, as is evident in the site's many interim statements, there clearly was quite a firm grasp of its basic sequence at any one time.

What, however, was missing from this is any kind of centralised indexing. Accordingly, while they would have known how many *Grubenhäuser* or wells had been excavated to date, there was no such specific accounting of the site's postholes and pits (see Fig. 1.13 concerning the MPX's 'card system'). The same is also true of its finds, as there was never any control of, for example, the overall amount of pottery recovered (this in part dictated by the piecemeal dispersal of material to available specialists). Nor in the course of Mucking's post-excavation programmes have such unified indexes ever been assembled; though there are a multitude of 'type' indexes and catalogues, in many cases – including the total number of features (*c.* 44,000 estimated) – gross-values remain 'ballpark' estimates to this day.[11]

Appreciating this is crucial for understanding how the site's post-excavation was approached. While surely also determined by funding contingencies (and 'more' would have always been intended), in the end it was a matter of a *selective totality*. Though all features were dug and recorded, the Joneses were evidently not overly concerned with postholes unassigned to structures or unphased pits (see, though, Fig. 1.19). Equally, a period's 'bulk' pottery was not, at least initially, something to be prioritised, but only those key wares and *types*: things that 'spoke' and could be readily dated (though all finds were nevertheless collected and stored). There is nothing particularly surprising in this and large-scale assemblages invariably require 'type markers' to enable their sub-division and eventual specialist study. Such procedures would have been all the more necessary prior to the establishment of regional artefact chronologies and sequences, and were common in pre-1980s archaeology. Indeed, in reports of that era the total quantity of features excavated or sherds recovered are figures that are almost never supplied; instead, there is, for example, the illustrated feature-sherd catalogues. It was only in the later 1970s and early 1980s that the aims of such excavation practices – especially the loss of so much ploughsoil data that they entailed – was critiqued:

> Despite the fact that most excavations have been obviously only partial, totality of examination has often been hailed as the ideal, to be abandoned only because of its impracticality … there has been a fashion recently for large-scale excavations of settlement sites, for example *Mucking* (Jones 1978[b] and 1974) or Gussage All Saints (Wainwright & Spratling 1973), in which totality has been claimed as the aim. Even if one accepts that such totality is both a logical and a practical possibility, both of which I seriously doubt, a consideration of such total excavations is most revealing. The strategy usually involves as a first stage the mechanical stripping of the topsoil, thus ignoring and destroying all the information contained therein, such as the spatial distribution of artefacts and their relationship to subsoil features. Already part of the total information has been lost. Furthermore, never has the entire contents of a British site been sieved to recover such items as small animal bones and seeds.[12] *Total excavation, in fact, all too often involves nothing more than the total recovery of such traditionally determined features as houses and such artefacts as pottery* (Champion 1978, 208; emphasis added; see also e.g. Barker 1980).

It can be questioned whether the Joneses were fully aware of just what they were taking on with the site's intensive excavation and, especially, why they continuously dug so many kilometres of enclosure

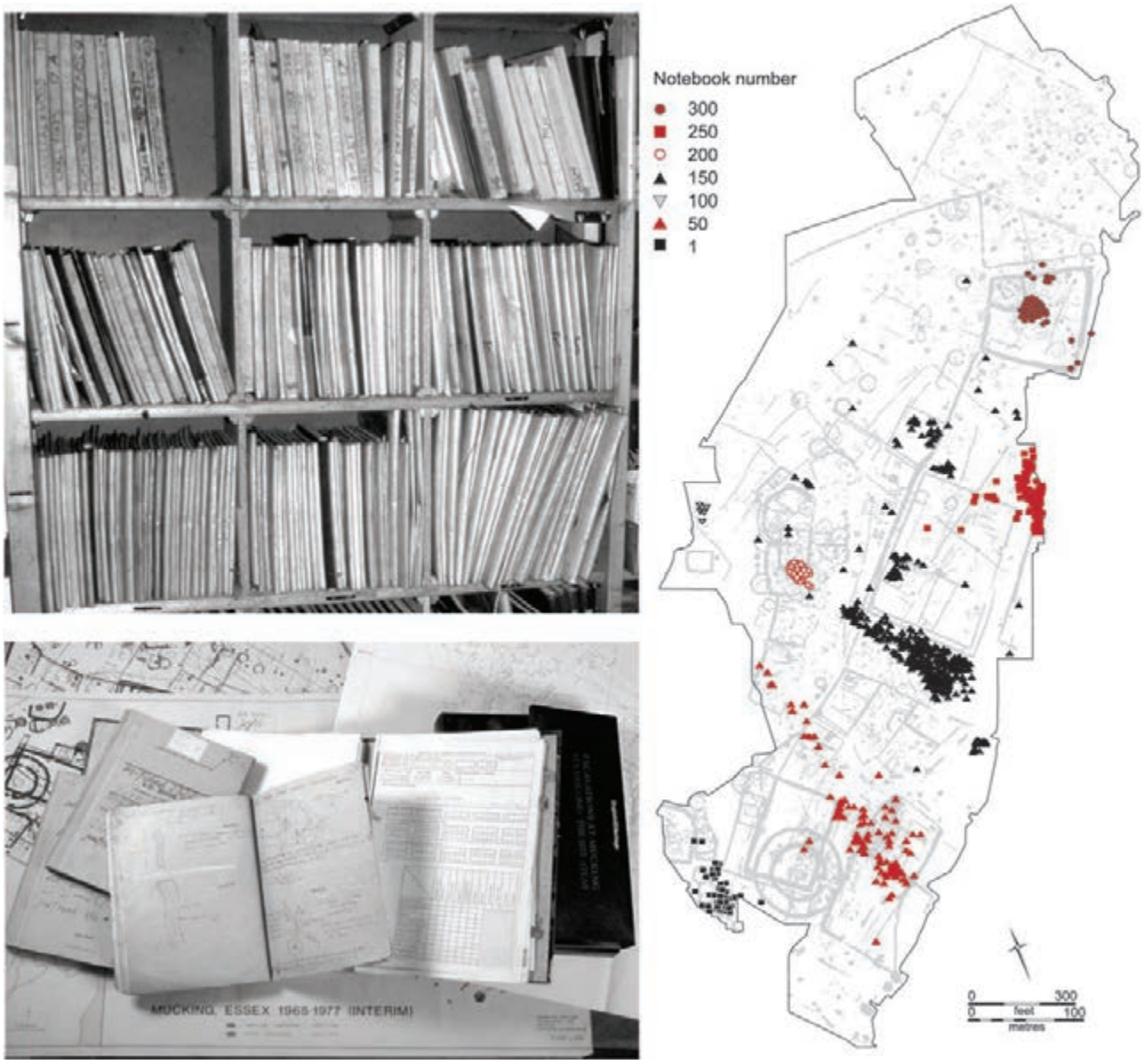

Figure 1.11. The Mucking 'Stacks': left, the site notebooks (top) and, below, cumulative sources (photograph, D. Webb); right, notebook plotting. The individual area-coverage of all of the site's notebooks has been plotted and collectively produces an image akin to a psychedelic plaid. For the purposes of comprehension, here only the coverage of seven notebooks (Nos 1, 50, 100, 150, 200, 250, 300 & 350) is shown. Although limited, the sample plot is both representative of the site's progress and its various modes of recording. Whereas many are locally specific, with for example Notebooks 1 and 300 respectively dedicated to Roundhouses 1 and 97, Notebook 50's coverage extended along a broad front and reflects the orientation of the quarry's working face at the time. In contrast, Notebooks 100 and 150 were largely cemetery-related; the latter's cover being markedly widespread.

ditches. Within the project's many interim reports, while certainly aware of the value of site distributions, it is clear that only once the computerisation of its archive was progressing at the Institute of Archaeology, London (see below) did Margaret began to fully realise the distributional possibilities of the project's vast data-base:

> The question – What use are such graphics in archaeology? – is best answered by another – How else could one quantify and describe the occurrence of very many artefacts except by mapping?
>
> Distributions maps have been a mainstay of archaeological thinking especially since Cyril Fox published with Lily Chitty no less than forty one distributions in their classic Personality of Britain fifty years ago. But distributions within sites have rarely been tackled on a meaningful scale except by geophysicists' recording surveys of anomalies. Since scientists handle such work computers are accepted as a matter of course.

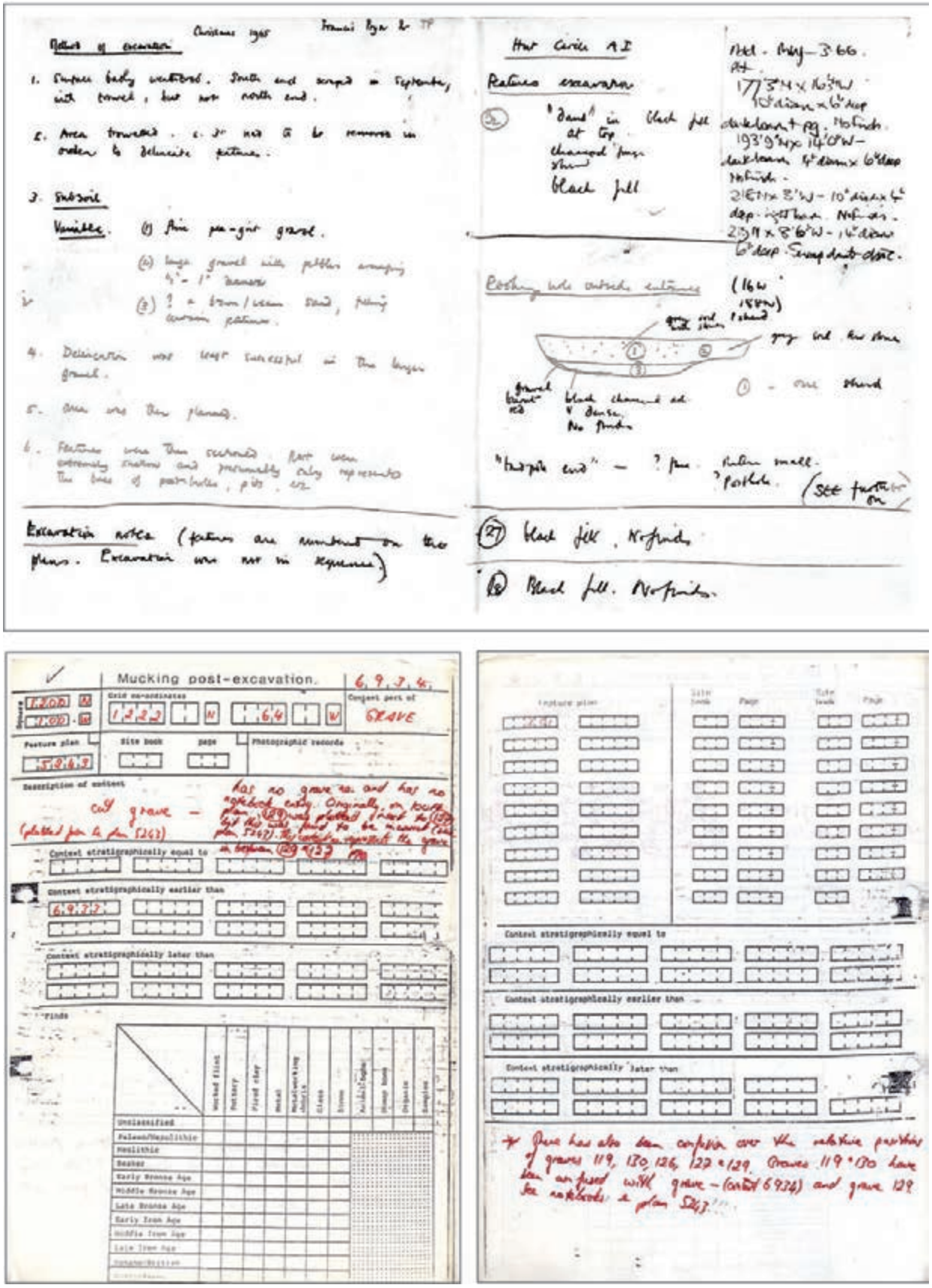

Figure 1.12. Site Records: top Tim Potter and Francis Pryor's site notebook entries, Christmas 1965; below, BM/EH-phase context sheet.

MPX CARD INDEX

v MPX scheme 1977 in LISTS RING FOLDER

Limited post-excavation took place in the first years mostly during the gaps in digging. The first consideration was the securing of the data obtained – though the Thames flood of 1977 which soaked a few finds boxes in the museum at Tilbury was an unforeseen risk. There was some simple duplication by manual copyinfof feature plans and a start made in the cataloguing of fired clay. The most significant move was to initiate a card system. The principle was first to make out a card on a contextual basis, by co-ordinate. A second card (with a clipped corner) was then made out to according to the type of context eg ditch, pit, well &c. Provision was made on either or both cards enabling a cross-reference to the catalogue numbers of finds within that context. It soon became clear that this would be far too cumbersome and was not secure.

Cemetery II. ditch 6Sts.
1. B of Entrance
1048 x 540. [Mc 221/92]
1 (6"–3"). 1 tile Sump. Roman. Pre Sarsens.
2. S of entrance a ditch 6St.
(2) P.2D.47 [1700]
NB 223/54
2 in 6–12".

MINISTRY OF DEFENCE
MAIN BUILDING, WHITEHALL, LONDON, S.W.1
TELEPHONE 01-930 7022
CHIEF ADVISER
PERSONNEL AND LOGISTICS

3rd February, 1970

Dear Sir Eric –

I am sorry it has taken so long to reply to your letter of 15th December last asking if Army Engineer support could be obtained for the excavations being conducted by Mrs Margaret Jones at Mucking in Essex.

Unfortunately, it seems unlikely that the Army will be able to help you this year. Within the last three weeks a Sapper recce party has visited the various sites with Mrs Jones and made a very careful examination of the suggested tasks. Much more work is involved than was at first thought and, regrettably, it cannot be said to provide useful training. The Engineer Brigade Commander (to whom Mrs Jones had also made a direct approach) has reluctantly decided that he cannot make Engineer plant available without prejudicing work on other tasks which have been given high priority. If the work had real training value we could perhaps have found a way to help in the longer term.

We have also explored the possibility of there being any suitable Service plant, such as the D4 type tractor mentioned by Mrs Jones, which could be sold by us and used by the excavating team. Although it is true that the D4 is now obsolete, and that the few remaining machines of the type which are still in service are all very old, those still going are all usefully employed and will be required until they are worn out and scrapped.

I am sorry we have not been able to continue the practical help the Army and the RAF gave in 1968: the excavation is clearly an interesting project and it is sad to think of valuable archaeological material being lost through lack of a suitable machine.

Yours sincerely
Charles Harrington

The Rt Hon Sir Eric Fletcher, LL.D, MP
House of Commons
London, S.W.1

Figure 1.13. Archival Curios: left, a concise explanation of the MPX record card system, with an example below; right, 1970 letter from Gen. Sir Charles Harrington, MoD's Chief Adviser on Personnel and Logistics, to Rt. Hon. Sir Eric Fletcher, MP for Islington, concerning Margaret's application for the army to machine-strip the site that year. With the card system note typed on the back of a used A4 envelope, together these 'relics' reflect two characteristics typical of Margaret: extreme thrift and audacity!

> Most archaeologists being still arts based, computers are still suspect …
>
> If anything is going to re-create the past environment on this Thames side terrace gravel and enable the results to be published economically surely it must be this new data technology (Jones 1985b).

Problems arose with Mucking's system essentially because it was based on a pre-Frere Report approach to site analysis/publication, whose impact is clear in a statement of Margaret Jones from 1980:

> To add to the sheer physical problems of handling so much material from the 13 year excavations are the consequences of current revolutions in printing technology and mechanical data handling, as well as *new thinking in archaeology which requires all excavation data to be made available. In the past, an excavation report consisted basically of the excavator's narrative of what he had dug and his conclusions on its meaning. His argument was supported by selected plans, finds and specialist reports*. Today's excavation results need to be presented quite differently. The intention is to enable data to be re-assessed by others – now and in the future – who might well reach different conclusions. The principles of this new publication policy were debated by a quango whose recommendations are known from its chairman – Professor Frere of Oxford as the Frere Report (emphasis added; note her masculinisation of 'the excavator'; Jones 1980).

There can be little doubt that the intensity with which the site was dug and the vast quantities of data it accrued (e.g. its estimated 1.7 million finds), was ultimately to the detriment of its post-excavation. This is not only true in terms of the ability to handle such a staggering amount of information, but also 'the gap' it inevitably created between what expectation there would have been of its final publication format and the interim awareness of its fieldwork results. With, for example, an entire volume intended to be devoted to the study of its fired clay, whether any coherent synthetic overview would have ever resulted from such overly in-depth study is debatable.[13]

At this juncture the history of the project's post-excavation requires some rehearsal. Aside from Wainwright's 'Time Please' retrospect of the era generally (2000; *cf*. Fowler 2001 and Rahtz 2001b; see also Cooper 2013 and Cooper & Yarrow 2012), this volume benefits from the recent appearance of Barford's appropriately entitled appraisal, 'Mucking: Real heritage heroism or heroic failure', in *The Great Excavations* volume (Schofield 2010). In addition to sketching the site's background and singular social milieu, the latter also outlines the tale of the previous two phases of its post-excavation aftermath. With the details therefore provided by him, and augmented by *The Site Atlas*' summary (Clark 1993, 12–16), here we can limit ourselves to basics.

Altogether, significant post-excavation resources went into the project (equivalent to *c*. £2 million in today's money). Over time, a lot of personalities were involved and many got bruised in the process; it is not our intention here to judge their efforts, but rather to try to understand what was attempted and why. When compared to the some £85,000 that went into the site's excavation (excluding much direct support from Essex County Council), the *c*. £250,000 that was directed to its initial 1978–85 'Mucking Post-Excavation' phase – hereafter MPX – was considerable (see, by way of comparison, Fig. 1.7's caption for Dragonby's costings). It involved the employment of six Department of Environment-funded posts and 10 part-time Manpower Services Commission staff (hereafter, respectively, DoE and MSC), who were housed in the Central Library and Museum at Grays, Thurrock. Work then progressed on preparing the archive (e.g. inking plans) and on the site's main specialist analyses; also, various phase/area plans were assembled and a vast number of finds drawings were completed (many featuring in these volumes).[14] Certainly among its most important outputs was the computerisation of its archive, which was undertaken by Jonathan Moffett, under the supervision of Ian Graham, at the Institute of Archaeology, London. Although inputting of some portions of the site's finds catalogues were never fully completed (e.g. Roman surface pottery and a substantial proportion of the prehistoric wares), by 1983 they were to run a series of distribution plots that Margaret was able to proudly announce in the pages of *Rescue News* and *Panorama* (see Fig. 1.17 and, also, Figs. 4.49 and 5.15, 5.20 & 5.21; the project's computing is further detailed in the Roman Vol.).[15]

Coordinating a post-excavation programme of this scale obviously involved great effort and Margaret was, after all, 62 when it commenced. It would seem, however, that its main shortcoming – aside from a rather naive faith that 'the computer would sort everything out' (Moffett 1989 and Barford 2011, 225) – was its 'simultaneous-ness'. Too many fronts were advanced at the same time (e.g. finds publication drawings) without ever having the phasing totally sorted or the finds processed and, generally, while many facets were initiated, few tasks were actually completed. Although the demise of MPX was publicly accredited to Margaret's retirement, it is clear that handing over control of the project was not her choice and that the DoE Backlog Working Party, who oversaw and funded the project, had simply lost faith in her.[16]

The decision was made to continue the project's post-excavation at the British Museum, jointly managed by the Museum and English Heritage (hereafter, BM/EH phase; Clark 1993, 14–17). Under the direction of Ann Clark and operating out of the Museum's Blythe Road out-station from 1986–9 (though continuing in a much reduced version until

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Figure 1.14. Mucking's 'Phasing Wall' and archive store, British Museum, Blythe Road out-station (photographs, D. Webb): opposite page, lower left, detail Belgic Banjo, Roundhouse 65 (et al.)*; above, close-up of the 'Phasing Wall' with the South Rings blued circles central and with the Linford plan attached upper left (see Fig. 1.8).*

1992), this is estimated to have cost *c.* £325,000. The programme had a dual remit. On the one hand, the Museum was insistent that the archive be fully ordered for registration/accessioning purposes; on the other hand, English Heritage had a determined publication emphasis. Relating to the latter, while successfully compiling *The Site Atlas* (Clark 1993), the Anglo-Saxon volumes came to command the available resources (Hamerow 1993 and Hirst & Clark 2009). This choice was logical insofar as it was possible to isolate more readily that period's features from Mucking's 'mass' and it also focussed upon what was widely held to be its landscape's most significant occupation horizon (the selection also being driven by the Museum's need to accession the site's 'treasure' grave-goods of that date; A. Clark pers. comm.).[17] The resultant publications were produced in a traditional manner that focused on exhaustive finds presentation – effectively at a level that would be impossible to sustain for the rest of the site's periods.

As to the archive, the Museum was simply unable to get the Institute's computing running again. Although tempered in the knowledge that a high degree of MPX-phase data-input error had apparently been identified, they had to embark upon the computerisation of the site's records and finds once again. To facilitate this, it was decided to generate single-context records for its main cut features. All told, some 6,000 such sheets were thus issued (see Fig. 1.12), but – restricted to features of more than a set size (> *c.* 0.60m across) – this was just a fraction of the site's actual total.

As will be further outlined in this Chapter's final section, here we have taken a different approach, relying, where possible, on the notebook record. The motivation behind the BM/EH programme nonetheless needs to be put in perspective. Still governed by the emphasis in the Frere/Cunliffe Reports on the archive, the 1980s saw the wholesale promotion of single-context recording systems, with notebook recording held to be an anathema (see e.g. Lucas 2001a). In reality, however, Mucking's new context system essentially amounted to notebook cross-referencing/indexing. That said, their hand-drawn *Atlas* plans have proven a singular boon to our efforts.[18]

With the BM/EH programme's resources hard-pressed between the poles of publication and never-ending archiving, selected study was made of two of its prehistoric enclosures. Steve Trow focussed upon the Iron Age North Enclosure. While primarily undertaken in order to check whether the context system would stand up to further analysis, as well in relationship to the original records, this also involved appraisal of its ceramics. Later, Jon Etté pulled together the records of the Late Bronze Age South Rings and analysed its ceramics, with the intention that the monument would feature in a Mucking prehistory publication. Although, due to funding constraints, the latter was not realised, our researches have greatly benefited from both of their analyses and draft texts. Equally, during the programme's 1989–92 scaled down 'aftermath', Chris Going had a wider remit to examine the site's Roman phases and produced a draft volume text containing much provisional specialist work, which similarly informed our 'Mucking Roman' volume.

Amidst its reconfigurations, a number of project specialists did not survive the 'regime changes' of Mucking's protracted post-excavation. In hindsight, what does, though, seem singularly remarkable in all this is that when, through the London Institute's computing during the first half of the 1980s the actual quantities of the site's finds were first becoming known, the possibility of sample-analysis seems not to have been explored by MPX (the BM/EH programme did effectively involve prehistoric case-study 'samples'). Given that the obvious challenges posed by its post-excavation/publication must then have been apparent, studying only half or a even a fifth of the linear ditch-generated artefacts (leaving the rest for future researchers) would surely have been a realistic alternative. With its heyday in Britain occurring during the later 1970s, sampling theory was still very much to the fore in the first half of the subsequent decade and Mucking's archives would certainly seem to have been an obvious candidate for such treatment. It can only be thought that, as highlighted in the Frere Report (1975) and, later, Cunliffe's (1983), the emphasis then given to sites' archiving precluded any serious consideration of this option, and, in any case, it probably would have been thought an overtly 'academic' compromise and irresponsible. Indeed, given her reaction to Pryor's Maxey (see above), it surely would have been something that Margaret herself was dead-set against.

Finally, having read through the many communication files and successive post-excavation proposals, it is difficult to see that Margaret was actually up to the task of the site's publication. Derivative of the site's interim reports, there are many versions of introductory chapters, but there is little sense that she really knew how, thereafter, to structure and advance its analysis and publication and, in truth, how to put together a book (see e.g. Chap. 3, Note 5). This is not for a moment to detract from the staggering achievement of Mucking's fieldwork, especially the assembly of such an enormous and plottable finds archive. Nor should we be smug about what that meant in terms of procedural models. It is really only now, with the impact of the last two decades of development-generated resourcing, that a 'professionalism' is finally being applied to complex-site publication which simply then did not widely exist.

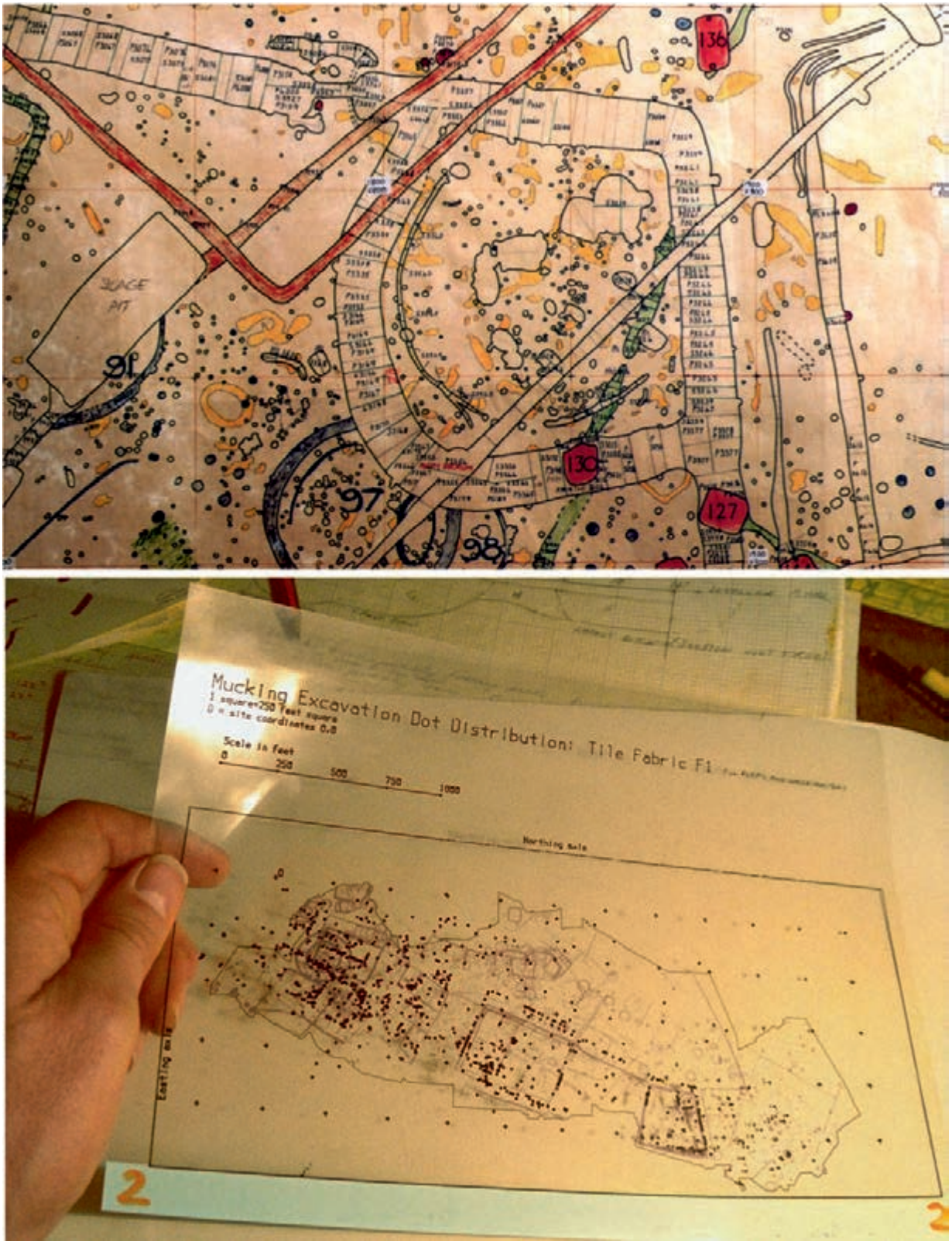


Figure 1.15. Phasing Wall detail, Roundhouse 110, North Enclosure (notice the proliferation of numbering) and, below, how Mucking's graphics were meant to work: transparent finds-distribution overlay upon site base-plan.

Project Framing (I) - *Thinking Graphically* (Mucking's 'Phase-wall')

The ability to 'think graphically' is fundamental to the understanding of excavations (e.g. Bradley 1997; Evans 1998a) and, certainly, the impact of having the technological means to reduce original site graphics to scale should not be underestimated. The personnel hours involved in rendering first Mucking's MPX-phase interim plan of 1980 and, then, *The Atlas'* base-plans 13 years later would have been astronomical. Especially with the latter, the effort it represents seems all the more extraordinary given that computer graphics were to become readily available within five years of issuing its 25-sheet portfolio; but the team, of course, were not to know this. It, nevertheless, now almost seems folly-like – who would want the site at this scale? It facilitates detailed analysis, but its plans are far too large for any site-wide comprehension on the part of the reader.

It should be remembered that when the site started in the 1960s photocopy-reduction was not then available, only becoming widely accessible in the 1970s. Large-scale plan-rendering had to be done laboriously with various forms of scaling compasses or Grant Projectors, which was clearly one of the reasons that such bodies as London's Institute of Archaeology and the British Museum employed well-staffed drawing offices. After Mucking's interim base-plan was reduced down, it was then copied to dye-line sheets which were hand-coloured to indicate the site's broad phasing (e.g. Figs. 2.1 & 4.1). Thereafter, inked-up versions were made (Fig. 1.18), but we have only been able to locate a poor A4 photocopy set of these. Also part of this early 1980s series, amongst the most extraordinary illustrations generated by the project is Figure 1.19's 'Uncertain' plan. Aside from a number of then unphased ditches, it shows the many thousands of unattributed postholes. Apart from being a remarkably frank admission of what was then unknown, one can only marvel at the effort the creation of this image would have entailed.

A lack of any ready means of image reduction or reproduction also accounts for the archive's many taped plan-extensions (e.g. Fig. 1.16), as well as the number of reworked versions of the same plan. The latter is also true of its texts. Today we can take for granted continuous updating of computer-based text and graphics, whereas previously significant revision would require the issuing of an entirely new version. Indeed, as we will see, too many *versions* of post-excavation sources are the bane of its archive (see Benjamin 1936 concerning theoretical concerns of 'mechanical reproduction').

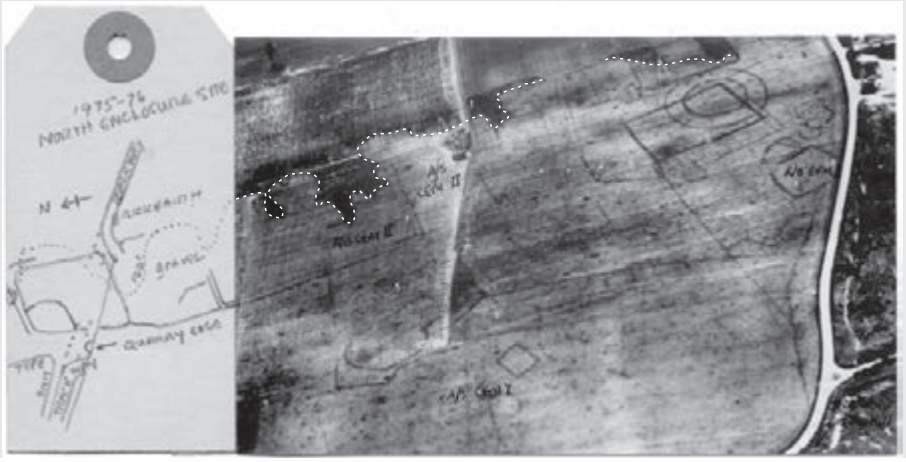
For our present purposes, through advances in computer graphics, it has not been plan-rendering that has been a major problem (its files, though, are huge), but the various tiers of indexing and the control/evaluation of so many tallies, files and lists. This emphasises all the more that technical means of visual reproduction and data manipulation sit at the heart of what scale of problem archaeology can realistically cope with. Really, *Mucking was just too big a site for its time*, but then they had no sense of the size it would eventually grow to. (Such technological means obviously also have implications for what irregular 'spaces' can be readily measured and, thereby, analysed: be it the area of a site itself or the extent of any artefact spread.)

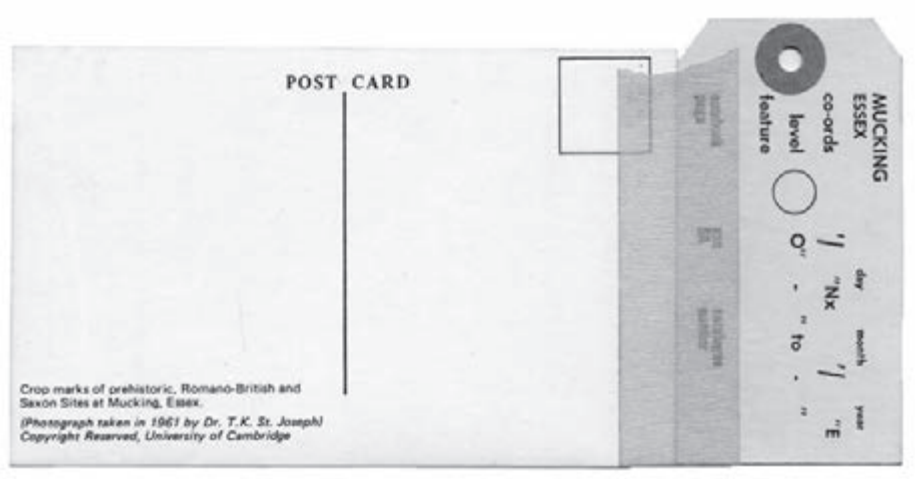
The mosaic-like dye-lines stuck together across Mucking's 'phasing walls' in Blythe Road (Fig. 1.14) speaks of *a physicality of the post-excavation process* at a time when computers were not in ready use. Our analyses have, in fact, seen comparable procedures: photocopying *The Atlas'* plans and colour-highlighting them by phase, and, then, later inputting this into the computer. Yes, in theory, this could now be directly done on a computer, but that would lose a crucial eye/hand 'phase-thinking' interrelationship, which in our experience only such procedures facilitate. In contrast, large data-set finds distributions are something realistically achieved through computing alone.

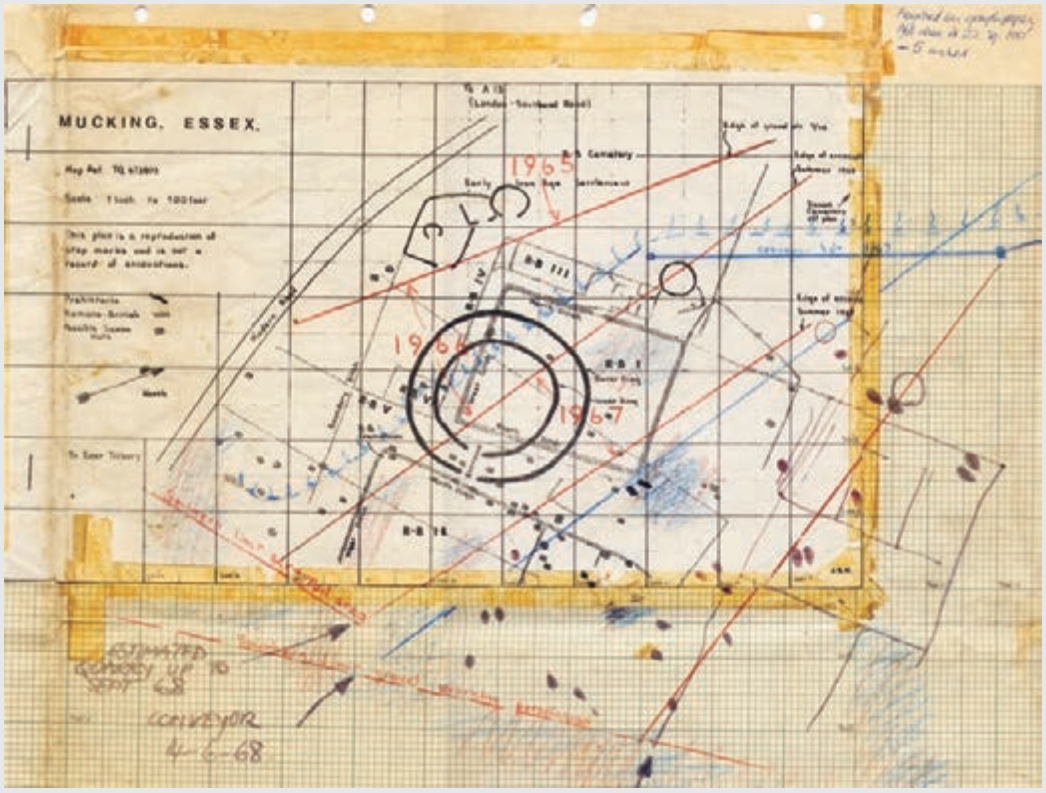
The 'physicality' of these processes is reminiscent of what was originally intended for the first Mucking volume (1987 draft; see main text below). Accompanying its site-plans was to be an A3 base-plan of the site as a whole, on which clear plastic sheets of specific finds distributions could be draped (with many examples of the latter surviving in the archives; see Fig. 1.17's plots and Fig. 1.15's reconstruction). Akin to the bound-in plastic overlays that featured in, for example, the human body entries in the encyclopaedias of one's youth, such procedures mark ways of displaying complex visual data in a pre-'active' computer graphics era (Fig. 1.15).

Today, of course, accompanying CDs in site volumes serve these roles. In the case of Heathrow

Figure 1.16. Taped Figures: Amongst the many working drawings within the site's archives, on one of its postcards (top) – an aerial photograph looking east with the Belgic Banjo in the foreground and the South Rings top right – has been sketched the limits of the Brickearth (the line here highlighted in white), the postcard having been extended left/northward by the taped-addition of a finds label. The lower plan, probably of c. *1968, shows – against the cropmark plot – the quarry's annual progress across the site's southern end. This image was probably the basis for the cropmark plot (the sole site plan) within Mucking's first* Antiquaries Journal *interim (Jones* et al. *1968, fig. 2) and it was only in the early 1970s that any site reporting was accompanied by an accurately reduced site plan. Then the same as shown in Figure 1.6, this suggests that for the first seven years of its operation there was no detailed reduced base-plan to provide overview; this, again, was perfectly reasonable given the enormous effort its compilation would have entailed.*


1975-76
NORTH ENCLOSURE SITE
N
QUARRY EDGE


POST CARD
MUCKING
ESSEX
co-ords
level
feature
day
month
year
"Nx
"E
Crop marks of prehistoric, Romano-British and Saxon Sites at Mucking, Essex.
(Photograph taken in 1961 by Dr. T.K. St. Joseph)
Copyright Reserved, University of Cambridge


MUCKING, ESSEX.
1965
1966
1967
ESTIMATED
CONVEYOR
4-6-68

Terminal 5/Perry Oaks (Framework Archaeology 2006), it fulfils the function of Mucking's *Atlas* (and more) and, without high-powered computing, it would be difficult to see how that 26ha site could otherwise have been excavated in the course of only a year. The risk, of course, is that it directly ties site comprehension to a specific 'hardware'. In this, and in terms of issues of technological/data maintenance, the degree to which the recommendations of the successive Frere and Cunliffe reports were directly tied to fiche technology seems remarkable. Now going into any archaeological library and appreciating the number of volumes whose fiche packages have never been opened – and also recognising just how few relevant organisations still have their necessary readers – is a salient reminder of what is actually the very limited demand for near-raw site archive sources (*vs*. synthetic overview) and the risks of pegging report production to specific 'portal' or access-mode technologies.[19]

Archive as Palimpsest

Turning to the current phase of the project's post-excavation, everything started when J.D. Hill of the British Museum approached us in 2006 and asked if something could be done with Mucking, as the Museum needed to rationalise its stores (much of the Mucking material never having been accessioned by the Museum). With the Cambridge Archaeological Unit (CAU) having already prepared the publication of the British Museum and University of Cambridge's joint Great Wilbraham investigations (Evans *et al*. 2006), as well as having worked up a number of similarly 'impossible' site archives, this was an attractive challenge. Accordingly, application was made to English Heritage and 'ALSF' (Aggregates Levy Sustainability Fund) and a grant of *c*. £50,000 was received to appraise the project's archives and identify what might be possible. This was then further supported by smaller grants, both from the Museum itself and the Society of Antiquaries of London (specifically, the recent Margaret and Tom Jones Fund bequest), and since then both have annually made funds available. Augmented by other one-off contributions (as detailed in the volume's *Preface*), in total, this has amounted to some £170,000; in other words, relatively little by current standards.[20]

From the outset, it needs to be made clear that these volumes risked being overwhelmed by too much background context, and throughout editorial balances have had to be struck. By the standards of some recent CAU publications, our approach to the site's publication is relatively straightforward and we will not, for example, indulge in 'sophisticated' text-structure formats, *etc*. This seems only appropriate, as these books reflect the sustained efforts of so many participants and it would be wrong to use them as a vehicle for our own latter-day interests. It is, nevertheless, necessary to situate their production. On the one hand, although updated in relationship to recent fieldwork, there cannot be a 'Mucking for the 21st century'. Drawing extensively upon analyses variously undertaken two to three decades ago – underpinned by the excavation concerns/techniques of 10–20 years before that – by no means can we rework its archive into a 'modern standard' report. Yet, nor can it just be matter of simple reportage of how the Joneses envisaged its sequence. Too much fieldwork and changes in interpretative approach have occurred over the intervening period to allow us, if it were in any way possible, to just complete what they initiated.

While surely not the final word, for the present this is the last of Mucking's planned publications, with the CAU's accompanying Roman volume having largely been prepared beforehand. With the project's series initiated by *The Site Atlas* (Clark 1993), followed by the two Anglo-Saxon-phase volumes (Hamerow 1993; Hirst & Clark 2009), the Joneses clearly intended far more than the five books that will have appeared. Interestingly enough, though, it was clearly never their intention to issue the series in chronological order. In the end, in fact, the volumes have occurred in reverse sequence: announced by the *Atlas*, the Roman volume following the two Anglo-Saxon and, then finally, its prehistory was produced. Quite by accident, this is akin to how Christopher Hawkes argued that archaeology should be approached generally. Informed by textual sources, he consistently advocated that studies should progress from the 'historical present' backwards and, thereby, from the most to the least knowable (see Evans 1998b; see Chap. 4 concerning the project's connections with Hawkes). Certainly logical and having the benefit of not being fixated with 'origins', in the case of Mucking this has not, however, arisen through any specific theoretical orientation, but rather post-excavation necessity. Over what are decades now, it has been a matter of working from the most to least obvious features/periods and from what could be most readily extracted from 'the mass' (see Chap. 6 further to this issue).

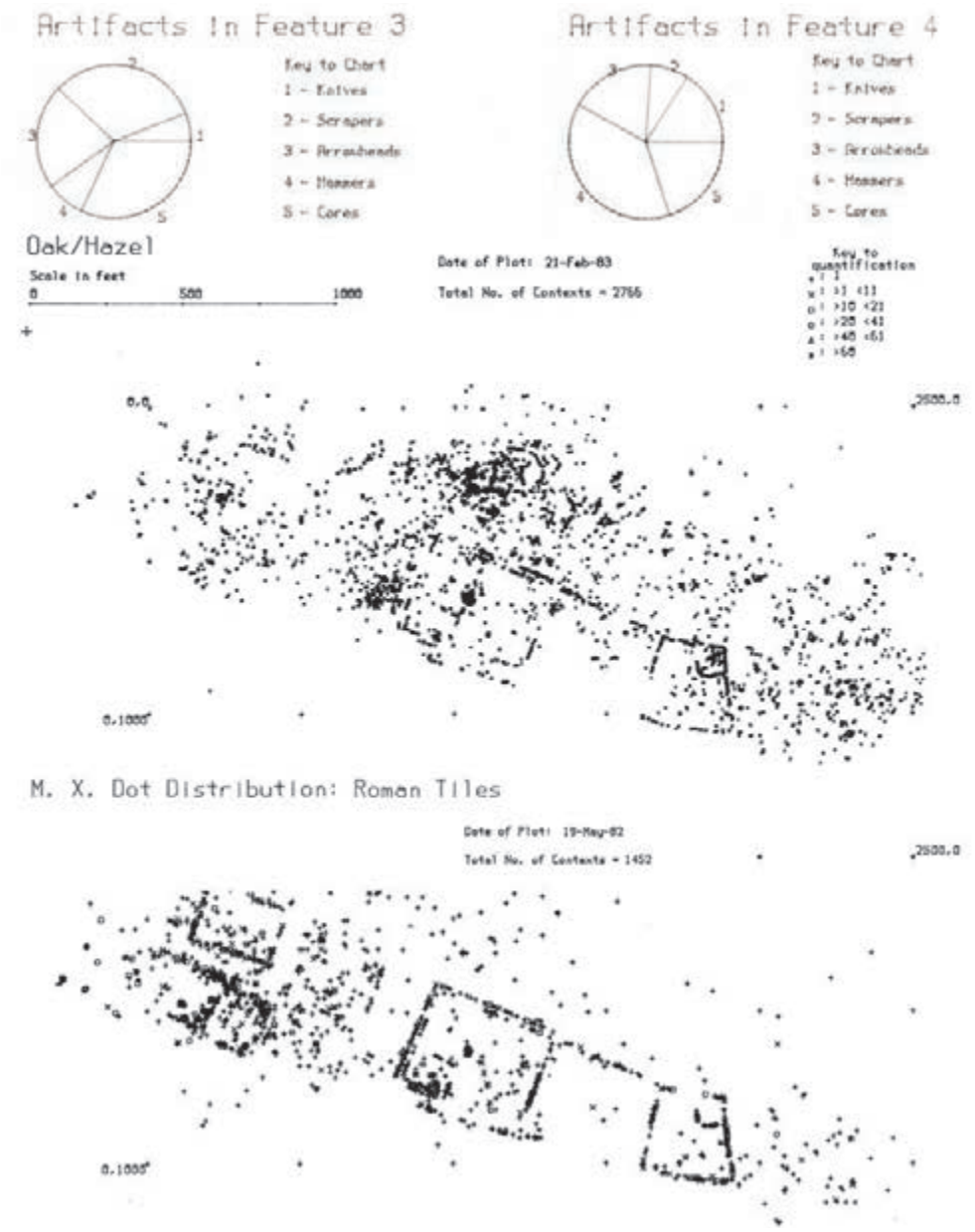


Figure 1.17. Early Computing: MPX/London Institute plots of the early 1980s (it seems incongruous that such advanced computer distributions should be rendered with an imperial scale).

As regard's the project's broader publication trajectory, a 'circularity' telling of the ways towards knowledge arose early during the course of our work. The attempt to distinguish more prehistoric features within the site's northern quarter brought to light a number of unrecognised Anglo-Saxon 'halls' and other possible 'late' structural settings. Obviously not included within Hamerow's 1993 volume, their implications are discussed in Chapter Six's relevant period summary.

For a variety of reasons, Mucking has obviously proven a troublesome site. In the end, publishing this swathe of Essex countryside has variously pushed (at times exceeded) and involved institutions from a remarkable academic 'triangulation': London's Institute of Archaeology, the British Museum and the Museum of London (respectively, Clark 1993 and Hirst & Clark 2009), plus both Oxford and Cambridge's universities (respectively Hamerow 1993 and these volumes). Led by the successive writing-up guidelines of the day, arguably the main problem with the two previous attempts made to publish Mucking's pre-Roman archaeology has been their strict focus upon its unwieldy archives and the sense that somehow they needed to be fully ordered and analysed in their totality before any writing

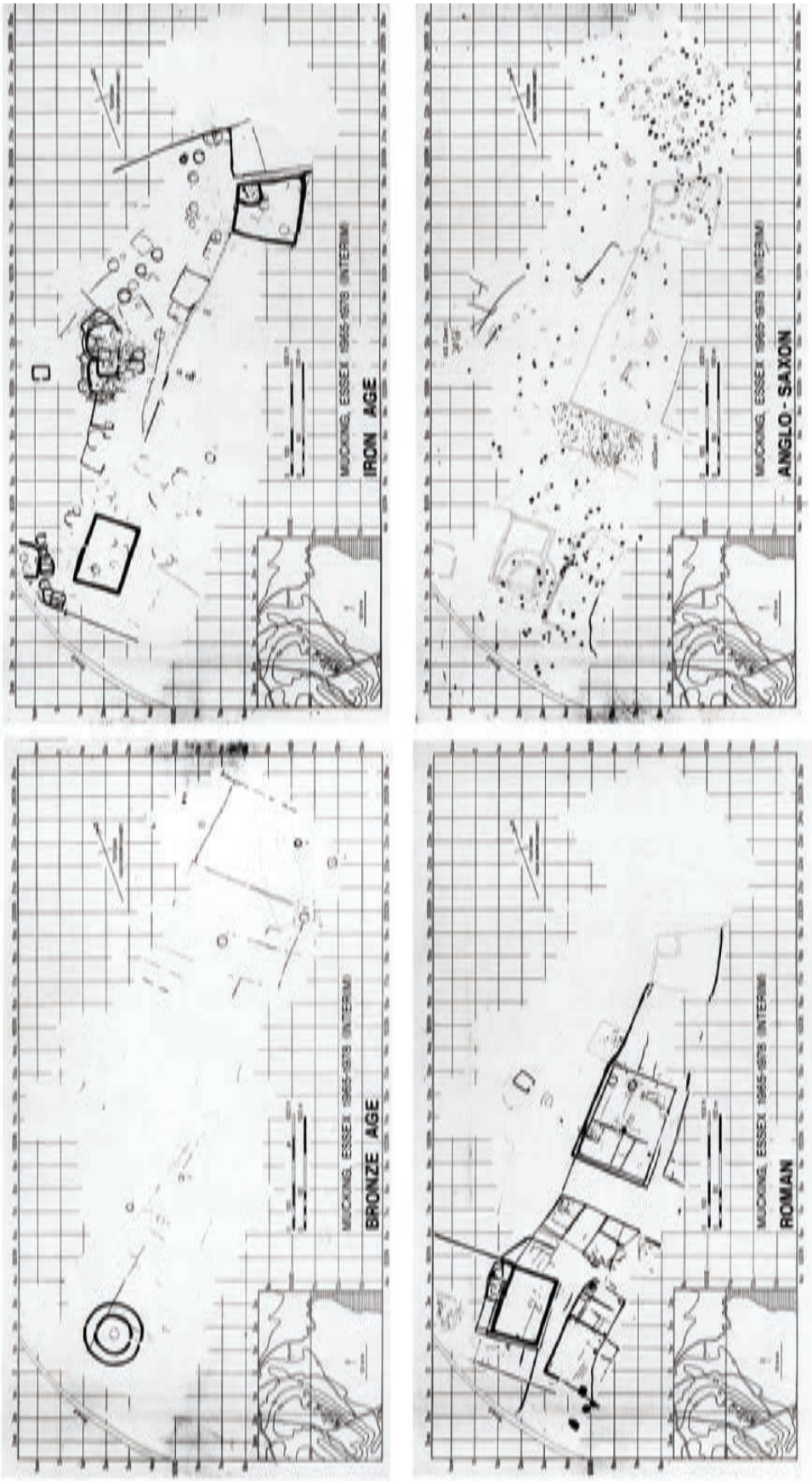


Figure 1.18. Early 1980s MPX phase-plan series.

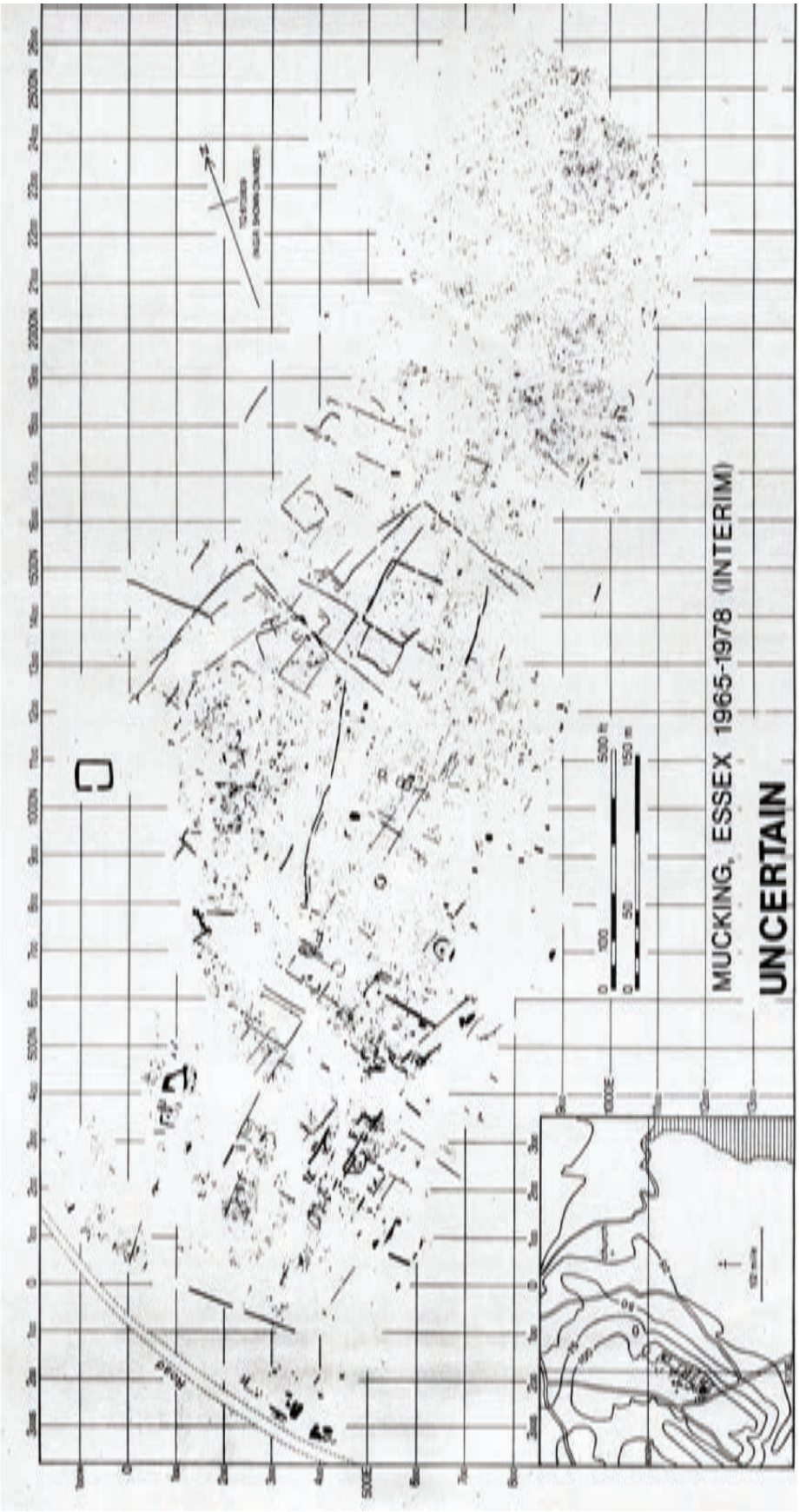


Figure 1.19. Gauging the 'Uncertain': MPX plan of unattributed features.

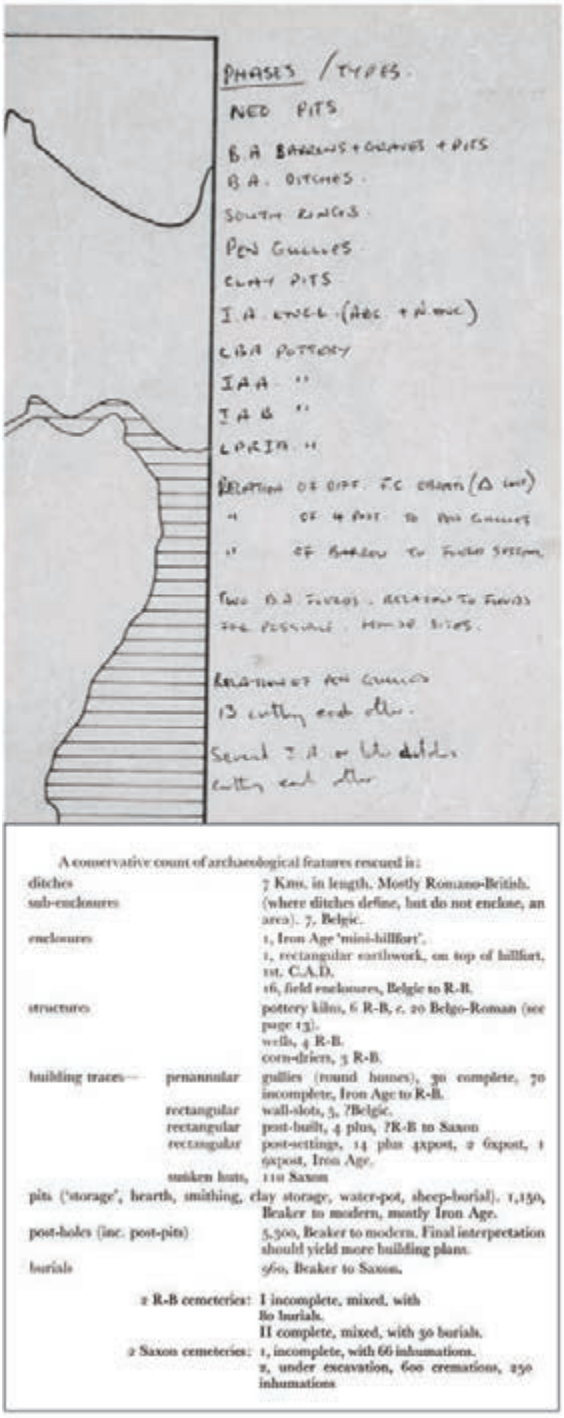


Figure 1.20. ''Type Thinking' and Lists: top right, checklist of main prehistoric feature types and analytical units/relationships appended to Figure 2.1's dye-line plan; below, 1973 feature-type 'counts' (Jones 1973, 9–10 and, also, the 1974 Antiquaries Journal *second interim report, 186–7; note that, instead of features 'investigated', the listed entries are said to be* rescued *and notice under the 'enclosures' heading the Iron Age 'mini-hillfort' – aka the South Rings; see Chap. 6 concerning 'listings' generally); right, 1985 MPX transfer-file listing of comparative site plans held in Mucking's archive.*

could progress. Its archives certainly have a horrific never-ending quality. On first approaching them in the British Museum's Blythe Road out-station, you passed down a narrow corridor along whose sides, from floor to ceiling, the site's original hand-coloured phase-plans had been taped up, and it conveyed a feeling that you were entering an ancient tomb (Fig. 1.14). This was only furthered on opening the double-doors to the main store where they filled the better part of an entire floor of this once grand Edwardian

office building. Struck by a prospect of seemingly endless shelves of finds, and cabinets stuffed with various site files, notebooks and sheaths of drawings (which had become disordered since the BM/EH phase), the whole thing evoked the final scene of Welles' *Citizen Kane* with its vista of stacked storage crates (i.e. all that was left of its protagonist's legacy and culmination of a lifetime; see Fig. 6.28).

Faced with this mass, 'archival palimpsest' seems an appropriate appellation. Not only is this in relationship to the sheer scale of the site's archives, but also the degree of 'over-writing' that its post-excavation has involved: the stream of interim notices and, for example, its successive prehistoric pottery reports.[21] As a result, in contrast to 'official' procedures, they have both an open-ended and incomplete quality (see Chap. 6's more theoretical Inset discussion of personal/project archives and site records). Lacking closure, there are few absolutes within it, with much of its 'knowledge' conditional and requiring qualification. Indeed, generally much of what is presented here must only be considered in a positivistic manner. Our phase-designations do not, for example, preclude that other features of any period would not come to light, with further scrutiny of the data or the use of alternative source files. Indeed, we can only anticipate future *errata*. Of course, one could always hope for further funding and wish that the record was in better shape, but we have no problem with any of this and are not ourselves particularly concerned with rule-bound presentation norms. *There is no one way to do archaeology, or assemble data and arguments: you do what seems to work and is meaningful*.

Having the advantage of being able to build upon the site's two previous post-excavation phases, our remit and the approach taken here clearly has quite a different emphasis to what has been attempted before. With much of the site's archives destined for 'deep' Museum storage (the finds being redeposited much faster than anticipated), for the immediate future this was the last chance to get something out and published from Mucking's pre-Anglo-Saxon phases. Accordingly, our concern has been less driven by any sense of archival 'totality' than seeing it as a 'book problem'. In other words, tackling a legend with only limited funding and finding a way of granting the project a degree of publication justice, but without for a moment thinking it the final word.

There is a fine line to tread here. On the one hand, there is the need to do justice to the extraordinary wealth of the site's records and what analyses were conducted by the successive parties involved (i.e. both MPX- and EH/BM-phases). On the other hand, while the degree and character of record-error requires highlighting, there is no need, as it were, to publicly 'rub salt into wounds'. This has proven a difficult balancing act to maintain, but the attempt (and ethos) has been genuine.

It needs to be addressed whether these two CAU Mucking volumes are actually part of the previously issued English Heritage series. The answer, unsurprisingly, would have to be both yes and no; the former, because English Heritage provided funding and that the books appear in a sequential order (if reversed; see above); but also no, as a conceptual line has been drawn here between these two and what went before. The basis of this distinction is two-fold. The first is reflected in the entitlement of the CAU series in which they appear: *Historiography and Fieldwork*. For our purposes, we no longer consider these volumes as marking the final publication of an 'active' or contemporary excavation, but rather see them as an exercise in historiography. That is, fieldwork from an earlier era, many of whose concerns are no longer current. Indeed, we see their publication as, in effect, an act of 'rescue' in its own right in relationship to the site's amassed archives and the labours of so many. Secondly, and a logical outcome of this ethos, relates to the situation and style of these volumes. Seeing them as a matter of 'historiographic rescue', there seems little reason to, for example, rework their graphics into a modern standard. Obviously also driven by available funding (i.e. our own 'wing-and-a-prayer'), this was not a difficult choice. Largely the legacy of the MPX programme and its low-cost labour, many of the project's wealth of inked hand-rendered drawings (*vs.* today's computer graphics) not only have a style that directly speaks of their time, but are quite striking. Against this background, there seems little justification for being overly concerned with matters of uniform presentation: it is a luxury that we simply cannot afford. Our explicit intention is that these books have an almost 'scrapbook-like' quality when compared to the previous project volumes, with the inclusion of 'raw' *Atlas* plan sheets hopefully conveying a sense of the site's daunting complexities (and ambiguities). If what, therefore, is valued are uniformly 'professional-style' graphics, then you will be left aghast by these two books (but, then, you would simply have to accept that nothing would otherwise have appeared).

Where possible, we have invited the project's earlier specialists to variously complete or revise their studies or, alternatively, to allow us to edit their prepared contributions as now necessary. In a spirit of finally getting the site published, their responses have invariably been positive. That said, not all of the original contributors could be contacted (e.g. Birley; others having died: Smith and Kinnes) or were in a position to revise their texts. This is particularly true of the pre-Iron Age pottery reports, which to various degrees now seem dated and, generally,

the material is no longer feasibly accessible. (Alex Gibson, for example, decided that, rather than update his contribution he would provide an introduction concerning the conditions in which he viewed the site's Beaker pottery. We long debated whether this new text should be retained in Chapter Two or put into Chapter Four's post-excavation 'Recollections'; in the name of qualifying the character of some of the specialist studies, the former option was eventually opted for.)

The main body of newly commissioned work has been Brudenell's pottery reports (in the case of the South Rings, based on Etté's data-base). Certainly our work was greatly facilitated by the fact that it proved possible to resurrect the MPX/Institute's computing and that we were able to re-start the project's distribution plotting. Indeed, more than twenty years on, getting Mucking up and running again was greeted with considerable enthusiasm, with luminaries and/or 'old-hands' coming to view it in operation (e.g. Ed Harris and Martin Carver).

Our choice of largely relying upon the MPX computing was also determined by the fact that the British Museum failed to maintain the subsequent-phase computing. As to the MPX error-factor, yes, it was/is probably higher than the 5% originally considered acceptable (Clark 1993, 13). Yet, while its error-rate is not calculable, the very fact that the MPX artefact plots essentially mirror the layout of the site's main features (e.g. Fig. 1.17) at least at a gross-scale, attests to its broad 'correctness'. The same is also true of Figure 1.18's phase-plan series. Evidently dating to the early 1980s (see below), they strikingly attest to just how much was then understood of the site's sequence (the project's post-excavation evidently twice becoming 'unstuck', largely due to the scale of Figure 1.19's 'Uncertain' feature plan). The crucial point is that there is certainly enough right in the project's files that, left with no other choice, one would not want to disregard this much data.

One of the reasons we have been able to tackle the site in such a robust or 'expedient' manner is that, with the delay of its publication, many of its results have, in effect, now been eclipsed by those from subsequent excavations. In other words, much of it (especially its prehistory) no longer seems quite so special. Yes, the scale of its 'palimpsest' remains unsurpassed – for example, the sheer number of Iron Age roundhouses recovered – but since then many ditched compounds of the period have been excavated in their entirety and in far more nuanced detail. Even the monumental 'uniqueness' of the South Rings was itself quickly superseded: first by excavation of Mucking's North Ring in 1978 (Bond 1988) and then by the ringworks at Springfield and South Hornchurch (respectively, Buckley & Hedges 1987, Brown & Medlycott 2013 and Guttmann & Last 2000).[22]

Almost as if anticipating this, the site's excavators were clearly also aware that many of its components were rather commonplace. After presenting the project's tallies to date in an early interim (e.g. how many kilometres of ditch excavated and buildings, pits and postholes recovered; see Note 11 & Fig. 1.20), it was commented: "Regarded simply as discovery, some of these features (and many of the finds) are exceptional; many might be described as *'bread and butter' archaeology*" (Jones 1973, 10; emphasis added). Certainly, it seems remarkable that such a sense of 'repetition' – in other words, basic *settlement fabric* – should be recognised early in the infancy of landscape archaeology.

For us, this delay in the project's publication carries with it the advantage that we can now address its sequence with a much fuller sense of comparative context (Fig. 1.21), allowing for greater appreciation of what was truly significant. Conversely, this also holds a more general lesson: excavations are inherently formulated in their time and delaying their publication for generations means that they lose much of their impact. Not only is this true of the situation of their techniques and interpretative framework, but that unreasonable delay almost amounts to a betrayal of the labour that first went into them. In this capacity, Pryor's Fengate provides an apt contrast. Its volumes regularly appeared hard on the heels of its fieldwork (e.g. Pryor 1980a and 1984) and, while invariably having shortcomings (see e.g. Evans *et al*. 2009), together with Fleming's Dartmoor researches (e.g. 1978), it is accredited with establishing and 'problematising' Bronze Age fieldsystems within southern Britain (see Yates 2007). Having a comparable allotment system, Mucking also participated in this (Jones & Bond 1980), but not to the level that it would have if it had then been fully published (see Evans *et al*. 2009, 12–14 for Pryor and M. Jones' fieldsystem exchanges).

Before addressing the question, 'what kind of book is this?', we are in the rare position of being able to know what was intended at various times (see, also, Barford's Chap. 4 'recollection' concerning Margaret's original intention of producing reports along the lines of the *Society of Antiquaries Research Reports*). Again, it is a question of 'multiples', as the archives include successive outlines. One, *Pre-Iron-Age Report*, is undated, but must be of pre-BM/EH vintage; it relates that the book was to be of eight chapters and essentially 'type' oriented. Following the introductory chapter, there was to be 'The Monuments/Earthworks', with separate sections on 'The Graves', 'The Barrows', 'Field Systems and Enclosures' and 'The Ring Ditches'. The third chapter was to cover 'The Pits' by period-sections; thereafter, there would have been separate chapters on pottery, lithics, other objects, distributions and, finally, 'Discussion and Date'. As far as can be

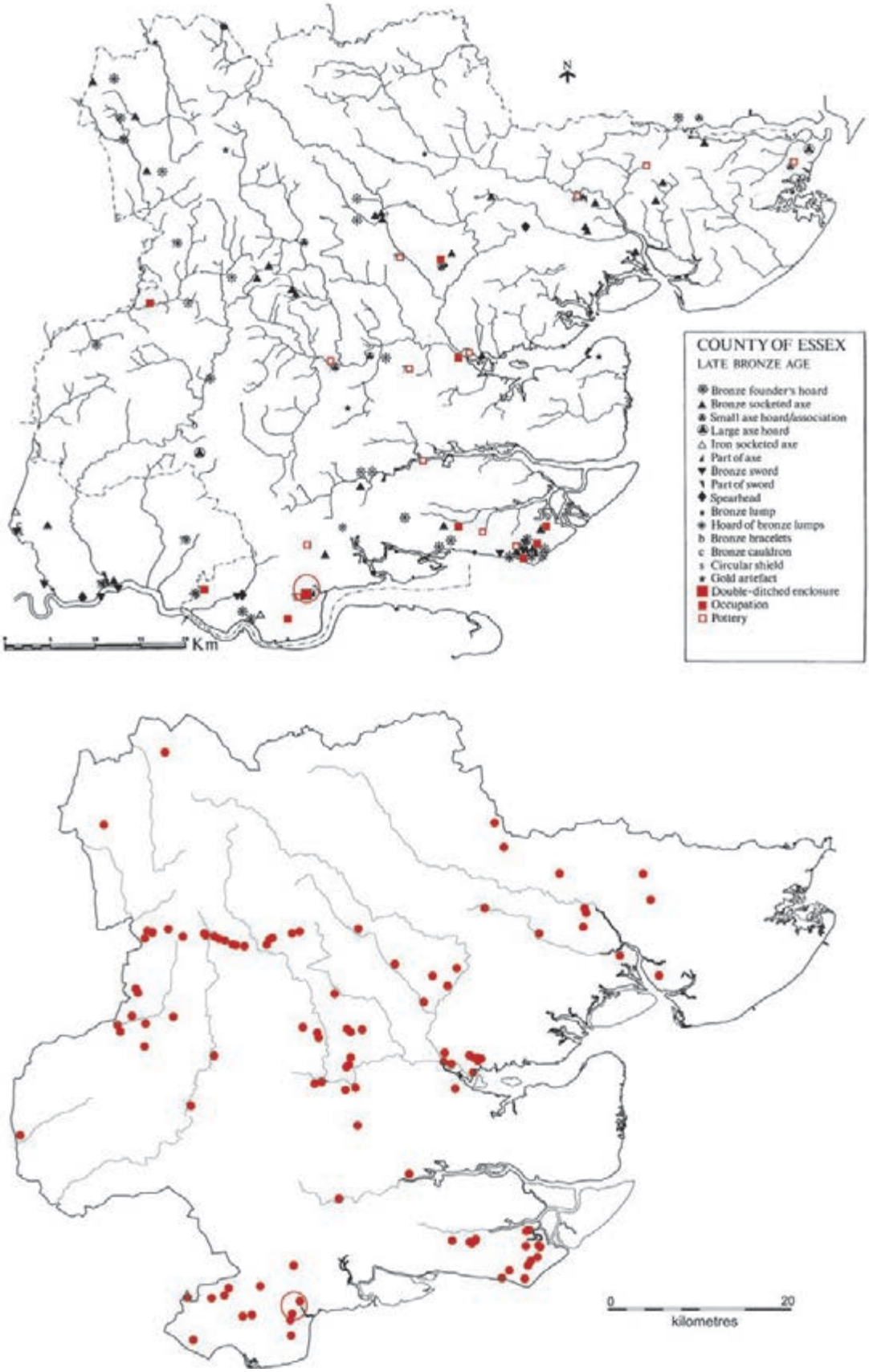


Figure 1.21. Essex's Late Bronze Age distributions – 30 years on; with Mucking's dots encircled, compare The Archaeology of Essex to AD 1500*'s meagre 1980 plotting (top) of the period's settlements (21; Buckley 1980, fig. 17) to the 108 that now feature on Brudenell's map (2012; bottom).*

established, while intended to include Late Bronze Age pits and their assemblages, in this schema the South Rings was to have its own volume (see Chap. 3, Note 4), with the Iron Age another still.[23]

Probably dating to 1984, the archives also include a typed, 24-page draft manuscript, `The Mucking Site An Introduction` (hereafter referred to, as it is labelled, HBMC2). Its authorship is unattributed, but it has since been established that it was by Paul Barford (across the top there is the notation 'for Margaret and Tom's comments' and it carries what are evidently Margaret's hand-written annotations). It is obvious that it was meant to accompany the phase-plan illustrations shown in Figures 1.18–19. While apparently intended as an introduction to the planned *Fired Clay* volume, it is admitted that the site's artefact studies are still in hand and that what is presented is provisional. It is, nonetheless, useful for our purposes, as it includes 2.5–4.5 page-long summaries of each of the site's main phases (although that for its pre-Middle Bronze Age runs to only a single paragraph).

In another outline, dating to 1987 and the beginning of the BM/EH programme, this was to be the second volume and be completed in December 1988 (the 1993 *Site Atlas* essentially reflecting what was intended in the first volume's outline). This, *The Prehistory* volume, was to have been inclusive up until the Late Iron Age (that appearing with the Roman in the next); the South Rings was to feature within it, with its structure generally being more chronologically organised than the original scheme's (and therefore would have been far closer to this book). Reflective of the project's abiding Anglo-Saxon concerns (and the Museum's 'quality finds' emphasis), two volumes each were to be devoted to that period's settlement and cemeteries. As things have finally panned out, this directive has remained dominant, with these last two CAU volumes having something of an 'aftermath' status.

Now, more than 25 years late as it were, specifically concerned with Mucking's prehistory, this book covers both 'beginnings and endings' as the last volume to appear in the series. The intention here is that, as the project still lacks a popular account, if only acquiring one of the series' volumes this would suffice. This accounts for why this chapter includes such an extensive account of the project's background context and why the last chapter overviews the site sequence.

Of the approach taken to the project's prehistory, it is fair to say that there was a particular lack of problem-orientation of Mucking's pre-Iron Age phases. It would seem that the Joneses were relatively unversed in the era's Neolithic and earlier Bronze Age archaeology (and were little read in relevant ethnography). Indeed, prehistory in general seems to have largely fulfilled a scene-setting role for the site's more obvious Roman and Anglo-Saxon phases, with which the project – with, perhaps, the monumental South Rings aside – was mainly concerned. In part, however, this was also due to the current state of 'landscape archaeology' and the lack of an established gauge for what to expect of pre-Iron Age land-use/occupation densities. Given the scale of the site's residual flintwork, it could be argued that 'more' should have been distinguished (i.e. discrete scatters/clusters) and, certainly, its prehistory had something of a checklist-like quality: ticking the boxes that all broad phases – Grooved Ware, Beaker, *etc*. – were represented in some capacity. This ethos is expressed in what was meant to be the main directive of the *Pre-Iron-Age* volume: "`The contexts of lithic and ceramic materials provides an almost unique set of circumstances when unadulterated assemblages are present on the same site through the Neolithic and Bronze Ages`". Yet all this was perfectly true, and such a seemingly uninterrupted, 'long-land-use' succession had not been recovered from one site before (Fig. 1.22). As will be apparent below, even today there are still gaps within the region's prehistoric ceramic sequence and clearly it was hoped that, with its high finds numbers and *longue durée*, Mucking would provide a 'core-sequence'.[24]

It is equally clear that the Joneses never really came to terms with the site's Iron Age either. Beyond just accrediting its many roundhouses to 'transhumant shepherds', not really having a framework by which to grasp the period's archaeology meant that – somewhat contradictory to a normative cultural-historical paradigm – nor was the impact of the Roman Conquest much emphasised (i.e. more might have been expected given that the site falls within the long 'shadow' of Colchester; see, though, Jones & Jones 1975, 146). In fact, and as will be fully outlined in Chapter Four, the main discovery of the current programme was an extraordinary Late Iron Age 'formal'/ritual complex: *The Plaza*. Perhaps only recognised because of producing the project's prehistoric and Roman volumes in tandem, by its situation in the heart of the site, its eventual 'assembly' called for a significant reappraisal of Mucking's Early Roman phases and their *raison d'etre*. Effectively, filling up the site-central 'gap' on Figures 1.18's Iron Age phase-plan, the complex's component-parts had always been known but just never put together. Yet, once again, there is no reason to be smug about this, as the existence of such a site configuration could only have been possible following the Fison Way excavations (1980–2; Gregory 1991) and the recognition, over the last 15 years or so, of other such terminal Iron Age ritual centres generally (e.g. Bryant & Niblett 1997; Creighton 2006).

For reasons that should by now be obvious, in its various 'prehistoric parts' this is not a site/volume

to be turned to for detailed analysis, but rather – building on the virtue of the project's sheer scale and in the face of its lingering ambiguities – its *broad landscape patterning*. As outlined above, this is particularly true of the articulation of its 'small feature' background and this has remained an issue that has dogged our efforts. In response, we have only been able to case-study selected areas in any depth (but, even then, not too closely as its records do not readily take such scrutiny). Accordingly, much of the project's prehistory must invariably have an inventory-like character, with, for example, its many Iron Age structures essentially presented in a gazetteer format.

Regardless of the contingent or 'negotiable' nature of much of the site's data, a relatively hard-edged approach has, moreover, been taken to the definition of its period-based 'activity' and/or settlement clusters/areas. Only by adopting this policy can justice be done to the *longue durée*-perspective that the excavations provide – interrelating settlement and cemetery evidence – and thereby allowing for full consideration of issues of settlement continuity and the terrace's long-term *demography*; in other words, the 'ebb-and-flow' of communities in landscape. This is a crucial theme, as one of the things that most distinguishes Mucking is its number of burials: some 670 cremations and nearly 475 inhumations

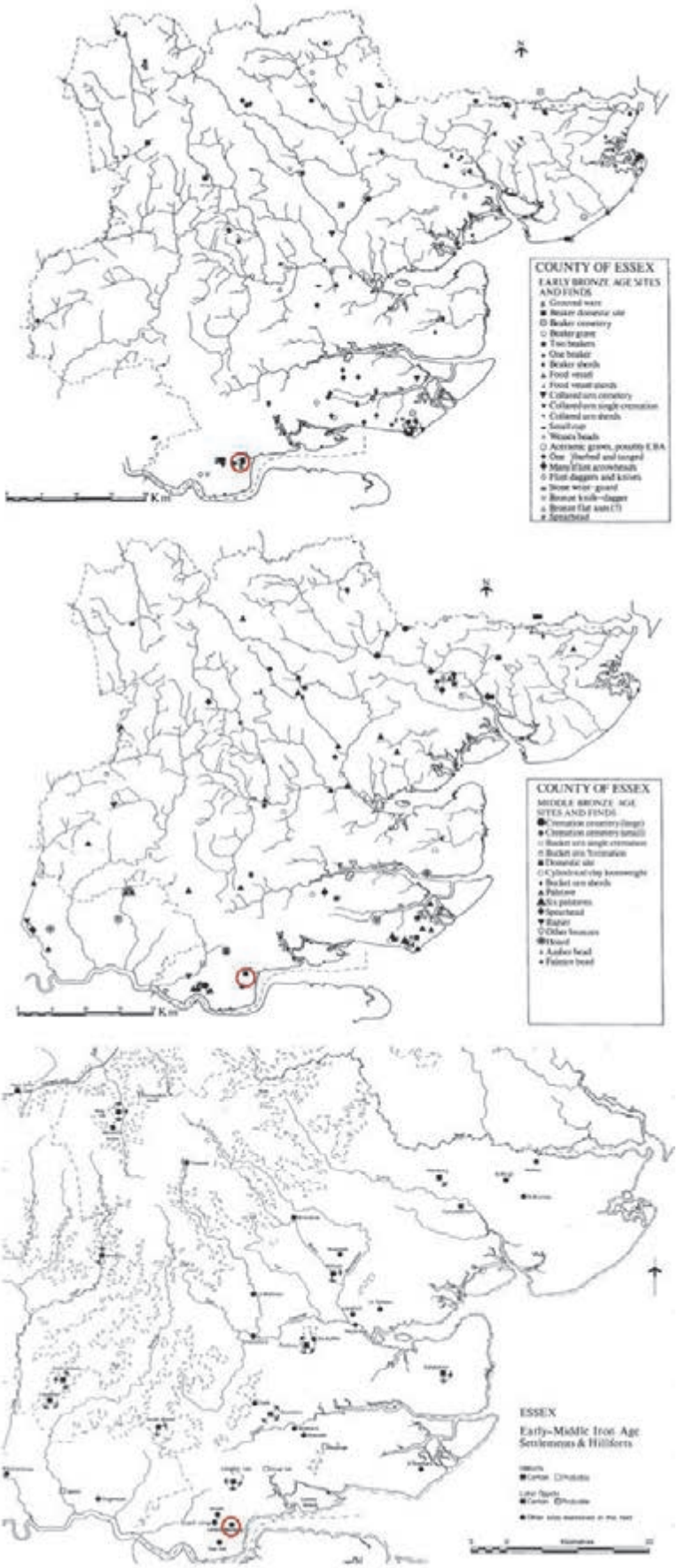


Figure 1.22. The County's period distribution maps from The Archaeology of Essex to AD 1500 *volume (Buckley 1980, figs. 15, 16 & 18) with Mucking's entries red-circled. Also demonstrating just what degree of early-days post-excavation finds/phasing control there was, Mucking's significance is apparent by its prominence in the period summaries within that overview volume and in the number of 'type' dots it contributed to its distribution maps. Due largely to the build-up of fieldwork results over the intervening years, aside from in Going's 'Roman Countryside' contribution, the role of Mucking was far less noticeable in the County's updated 1996 conference overview (Going 1996).*

(Fig. 1.23). When its frequencies are broken down by broad period, they attest to the intensity of Mucking's occupation and suggest sustained population levels (Table 1.2).

These figures stand, for example, in marked contrast to the only three interments recovered from the 26ha stripped area at Heathrow Terminal 5/Perry Oaks (Framework Archaeology 2006). Certainly, Mucking's representation of the dead – when combined with the sheer number of its houses/buildings over time – directly speaks of its *settlement sequence* and emphasises that it was not any kind of 'typical' landscape-sample of the southern English countryside. Accordingly, amongst this volume's abiding premisses is that it was only during the Late Bronze Age that the site's sequence 'took-off' and, thereafter, saw sustained – though not uninterrupted – high intensity usage until Anglo-Saxon times. Crucial here is the nature of the determinants that effectively then made the site/landscape 'special'; with salt and grain (surplus) being singled out as, at various times, its main 'drivers'.

Despite Margaret's death in 2001, it is not particularly difficult to reconstruct how she characterised the archaeology of the site's various phases through the project's many interim reports and 'state-of-play' notices (these are fully listed in Clark 1993 and, unless directly cited, will not be repeated here). Accordingly, Margaret's 'take' on them will feature within the introductory section of the respective chapters below. Beyond just disciplinary courtesy, this is essential, as what/why has been thought of the site's periods at any one time (as well as its logistical constraints) is as much a mainstay of its 'story' as any landscape narrative construed long after the fact. To both suggest the era and distinguish between formal published papers (e.g. *Antiquaries Journal* interims) and less polished sources (i.e. 'raw' site archival and local society statements; e.g. *Panorama*), quotations and full contributions from the latter will be in courier font (typewriter style, which is also evocative of the day's highly influential *British Archaeological Reports* conference volumes). Also further to this volume's 'style', just what archival sources are drawn upon at any one time (and an appraisal of their validity) will have to be cited; to avoid this being overly digressive, these and other matters of detail will be presented as footnotes.

Dying eight years before Margaret, Tom Jones' contribution to these volumes is primarily aesthetic and certainly it has been a great advantage to be able to be draw upon his superb-quality site and artefact photographs.[25] Otherwise, in an effort to further grasp the Joneses' intentions, various informal interviews have been conducted with the site's leading 'players'. Although not wishing to over-indulge in oral history, reminiscences have also been solicited amongst its many sometime fieldworkers. Their inclusion does not amount to any kind of comprehensive 'site ethnography', but just provides a sense of contextual flavour (see Insets, Chaps. 2 & 4).[26] This, however, requires a further caveat. We are fully aware that such long-after-the-fact insights are invariably partial and often biased; while many obviously think fondly of the Joneses and their time at the site, for others it is a matter of staking a claim as a 'survivor'. Certainly, there is no denying that Margaret could be formidable and was a colourful character (see Chap. 3, Inset), and that Mucking was as much an extraordinary social event as an excavation milestone.

Further to the book's 'voices', appropriate to the Series' *Historiography and Fieldwork* directive, our aim here is that the volume should attempt to embrace both the 'highs and lows' of the site's context. That is both the *big ideas* that influenced its interpretation and at least provide a flavour of the *minutiae* of its day-to-day operations and logistical constraints/possibilities.

Concerning the book's 'pragmatics', the overall digital base-plan of the site that is used in the two CAU volumes is not itself complete. While showing all ditched compounds and major 'type' features (e.g. *Grubenhäuser*, kilns and roundhouses), it only includes those pits and postholes that were assigned context numbers during the BM/EH programme; in other words, not all of the small features are depicted. When on those occasions below that reference must be made to these 'un-numbered/background' features, the *Atlas* plans will be employed. It should also be noted that, along with relevant indices and

Table 1.2. Interment frequency by phase (and cemetery designations; note that the prehistoric cemeteries exclude the Bronze Age barrows. Clearly also including Conquest Period/Roman inhumations, Prehistoric Cemetery III has also been allocated a dual Roman-phase status – RB Cemetery V – with its 12 burials here duly assigned to the latter.

	Cemeteries	Cremations	Inhumations	Total Interments
Prehistoric	I–V	140	27	167
Roman	I–IV/V	69	100	169
Anglo-Saxon	I & II	463	346	809
TOTAL	11	672	473	1145

Figure 1.23. Mucking's Dead and Cemeteries: left, prehistoric-ascribed burials; right, barrow and cemetery locations (all phases).

data-bases, *etc*., both our digital plan and those from *The Atlas* are posted on the project's accompanying digital archive in the University of Cambridge's 'D-Space'. Our intention is that, as a package, this is an unparalleled teaching resource (especially for sampling theory) and should encourage further research on the site's archives, which, needless to say, still has great untapped potential.

Finally, what of our prefixed sub-title, *Lives in Land*? It is held to be apt on two counts. First, as the site's extraordinary 'dead-count' testifies, there is the sheer number of the lives variously lived out across Mucking's terrace. Indeed, the archive's hundreds of sand-stain inhumation drawings – only a few of which are included here (see e.g. Fig. 6.19) – considered together almost have the quality of a 'dance of death', and they bring a human dimension to time and sequence. Second, of course, is the manner in which so much of the Joneses' lives were given to that windswept landscape. While, for both cases, there is a sense of something truly ennobling (e.g. venture and dedication in the face of *passage*), both this book and the field project are now equally imbued with a certain pathos.

Notes

1 *Grubenhäuser* was the term favoured by Margaret Jones and followed by Hamerow in her 1993 publication of the site; it will duly also be used herein, with specific numbered-entries prefixed 'GH'.

2 Mucking was clearly instrumental in Rescue's initiation (see e.g. Rahtz 1974) and it became the rural 'standard-bearer' of the cause (G. Wainwright, pers. comm.); see Figure 1.20 concerning Mucking's 'rescuing' of features and, also, Reynolds and Barber 1984 for this ethos in relationship to 'total' and/or research-led archaeology.

3 Margaret's library did, though, apparently include a copy of Clarke's *Models in Archaeology* (1972; P. Barford pers. comm.; see also his Chap. 4 'recollection' concerning the size of the Joneses' working library), and she regularly attended archaeological conferences and seminars.

4 The archive files attest to the enormous scope of both her national and international museum and university project-related correspondence.

5 Of the region's volumes published at that time, Drury's *Little Waltham* (1978b) also reflects a very high degree of scientific analysis and testing (see, also, Note 23, below)

6 Ministry of Works' archaeologists such as Margaret only received their salaries while in the field, there being no set means to fund post-excavation; hence, the need to keeping digging/site-stripping.

7 Further attesting to the daunting scale of the site's planning, omitted from it is the almost wallpaper-like background of periglacial hollows – termed 'fossil patterned ground' by Margaret – that were drawn throughout and which appear on the 1993 *Atlas'* maps (see also Fig. 6.31). In relationship to Hamerow's and Tipper's respective arguments concerning whether substantial numbers of Anglo-Saxon posthole buildings went unrecorded across the southern portion of the site (1993 and 2004, respectively; see Chap. 6), it must be presumed that Hamerow's adjudication was the more valid; by the same token that there clearly were many prehistoric and Roman building 'casualties', in theory this should then also apply to the Anglo-Saxon. That said, given what is now known to be the very early origins of the southern Anglo-Saxon settlement (i.e. Late Roman; see Chap. 6, below), the idea that its 'character' may have differed from that across the rest of the site-area would seem reasonable. See Hirst & Clark 2009, 9–11 further to the nature of Mucking's machining levels, as well as also for Keeley's study of its covering soil horizons.

8 The archives include a typed note of 1978 outlining the extreme-rescue-*cum*-watching-brief conditions that occurred along the quarry's eastern side. Extending over some 27,000sqm and where hand-digging had to be kept to a minimum, aside from a series of Roman wells and ditches, this revealed an unexpected cemetery of that date, plus a corndrier and three further *Grubenhäuser*. Obviously, it was circumstances like these which dictated the site's rather patchy/disjointed base-plan throughout that area.

9 Apparently the question, 'how would you dig Mucking over the course of a single year', was posed as a test-case for the competitive bids to excavate Heathrow Terminal Five (J. Lewis & J. Barrett pers. comm.; see Framework Archaeology 2006). The dynamics of Mucking's field-teams (e.g. seasonal team-size and varying proportion of overseas participants) could be readily reconstructed from the attendance records that exist for each year except the first within the archives (see Fig. 2.46).

10 Close scrutiny of Figures 1.5 and 4.58's 1971 aerial photographs of the 'Banjo' offers insights concerning the site's excavation techniques. Digging at this intensity and in a rather mechanical way throughout evidently led to problems at the quarry's 'seams'. In this case, Enclosure 11's circuit has been almost entirely half-excavated, but the arc of Enclosure 12 has yet to be distinguished (see Fig. 4.35). In other words, there has been insufficient digging 'ahead' of quarry-edge features and no overlap between the quarry's intake swathes, which clearly resulted in difficulties when joining up separate plans. Indeed, examination of Figure 4.50 indicates that it was at these 'seams' that the outline of linear features had to be dashed (i.e. faked); obviously, such 'joining' would been a challenging exercise when tackling something so hugely complicated as the 'Banjo'.

11 That said, apparently compiled by one D. Smith (Jones 1974, 199) and shown in Figure 1.20, the feature-type list that accompanied the site's 1973 and 1974 interims reflect a strong degree of recovery-control (Jones 1973, 9–10 and 1974, 186–7), with, for example, 7km of ditches, 1150 pits and 5300 postholes then dug. In our experience, the greatest single shortcoming of Mucking's coordinate-based recording system is how incredibly difficult it makes finds-retrieval. Not hierarchically organised by feature, it inherently involves enormous effort to appraise, for example, all the artefacts from a single building or enclosure.

12 Sieving of deposits was clearly undertaken at Mucking (see A. Taylor, Chap. 2, *Inset* and Fig. 3.36), but to what regularity or sample-fraction intensity is impossible to establish. Equally, a degree of casual fieldwalking collection was also apparently conducted, at least across the site's North Field-portion, but with little material recovered (P. Barford, pers. comm.). It should also be mentioned that the area of two *Grubenhäuser* (Nos. 81 & 82) was hand-excavated down through the topsoil profile; again, with very little surface material retrieved (see Barford 1995; Hirst & Clark 2009, 9–12).

13 That said, the site's fired clay assemblage was massive (*c.* 1643kg) and included a wide variety of usage/forms.

14 Reflective of their extreme local 'rescue' commitment, the team evidently even then did not stop digging. Wilkinson reports that, following the end of excavation on the Grays By-pass Ardale School Site in 1980, the Mucking Post-excavation Group salvage-dug a cluster of Roman burials (1988, 41; see also *Inset*, Chap. 4) and Carter similarly cites their efforts at Orsett 'Cock' (1998, 6).

15 See also Alvey & Moffett 1985, 44–5. The archives indicate that Margaret herself attended a week-long course on Computer Based Data Management for Archaeologists at the University of Bath in 1982. Indicative of just what a state of infancy the subject's computing was then in, the introductory letter recommends, if the participant was a novice, reading *The Ladybird Book of Computers*.

16 Amongst the project's many archive files, Number

15 details the MPX-archive documents transferred to the British Museum in 1985. Its inventory runs to hundreds of pages and their compilation must have involved a vast amount of labour. There is something utterly pathetic about this, and it can only have been a source of incredible sadness to lose so much of your life's work in this manner.

17 In the British Museum's 'Archaeology in Britain since 1945' exhibition and volume, it was Mucking's Anglo-Saxon that was highlighted and, otherwise, the South Rings only received passing mention (Longworth & Cherry 1986, 50 and 134–6).

18 This is equally true of the series of larger site-area plans that, during the last days of the BM/EH-phase, Chris Going had compiled from *Atlas* sheets; a number of these feature in Chapter Four below.

19 As discussed below, here we use Cambridge University's digital storage library, DSpace, only because of its 'eternal' maintenance guarantees; however, we know full well that nothing is forever.

20 Although usually not so highlighted in publications, it is imperative that the specific funding of the project's phases is outlined here as it has ultimately been the gauge of what has been done and why. It is estimated that to properly analyse and publish Mucking's prehistory – studying all of its pottery and thoroughly radiocarbon dating its sequence – would itself currently cost in excess of a half a million pounds. This would certainly yield an enormous amount of 'small feature' detail. Yet, as regards issues of *proof vs. understanding* (see Chap. 6), it would have to be questioned whether it would any longer be worthwhile, especially given the nature of the fieldwork records and the site's poor organic/environmental survival.

21 While Mucking's bewildering archives have certainly proven a source of tremendous frustration, there has also been the pleasure of stumbling upon gems. Such was the case with finding the late Tim Potter's 1966 series of roundhouse reconstruction figures (Fig. 4.14); another was Margaret's four-/six-poster text of 1984, and it is only fitting that its discovery means we are able to provide her with 'authored space' in this volume (see Chap. 4).

22 The brisk pace of the volume's text is also pragmatically determined. Given Mucking's post-excavation track-record and toll that it had claimed to date, an abiding concern when shouldering the final phase of its writing was that, literally, it could not be allowed to financially destroy the Unit. Hence, we have simply not allowed ourselves to get bogged down in problems of overly subtle detail or archival omissions. In other words, after giving such matters due consideration and appropriate source-searches, you eventually just have to accept the archives for what they are and 'drive on'.

23 As far as one can gather, with at least some of its post-excavation reportage compiled in the 1980s and sharing a number of specialist personnel, the 1998 Orsett 'Cock' volume is probably close to what was intended for the publication of Mucking's prehistory and Roman (Carter 1998); concerned with only the partial excavation of a single enclosure, it is 184 pages long. Similarly, K.A. Rodwell's *… Kelvedon* (1988) would probably also approximate what might have been anticipated of 1980s-vintage Mucking publication volumes. In his review of that report Mick Jones remarked "But the bulk of the work took place over a period of twenty weeks in 1970–73, with an average of twelve workers, i.e. 240 person-weeks, converted here into *c.* 150 pages of double column A4 text with two microfiche: on average a productivity of a half to one page per person-week!" (1991, 346). Applying this same gauge to Mucking would have resulted in some 3000 to 6000 pages of text; in the end, it will have only seen one- to two-thirds that length.

24 This point was emphasised in discussions we held, for example, with Paul Drury.

25 That said, in the course of MPX Tom apparently had his own small group of staff dedicated to working up the burial records, which are relatively thorough and systematic. The site's photography, as is apparent throughout this volume, also reflects a 'type'-gazetteer basis; there are those of seemingly endless individual elements – kilns, buildings, barrows or graves – but very few at a medial scale, showing the interrelationship between such components. In contrast, given the abundance of the excavation's on-going aerial coverage, this means that the fieldwork is essentially portrayed both high- and close-up.

26 Robert Rickett kindly provided a lengthy 'Mucking Remembered' recollection and portions from it feature in Chapter Two, with the entire document now included within the site's archives; the same also being true of Barford's Chapter Four 'recollection'.

Chapter 2

Scattered Usage and First Allotment
Mesolithic to Middle Bronze Age

Mucking's pre-Middle/later Bronze Age archaeology was the least appreciated and 'problematised' of its horizons. This is particularly true of its non-mortuary component, which was held to be scanty (Jones 1972a). Although potentially able to draw upon, for example, Clark's Hurst Fen excavations (Clark *et al*. 1960), the nature of Neolithic and earlier Bronze Age land-use/occupation was generally then little understood. Many of the crucial excavations within the region that began to formulate its character only occurred in the 1970s: Spong Hill, Orsett, Broome Heath, Great Wilbraham and, of course, Grimes Graves (BM-phase), with Longworth's excavation of 'cooking holes' on the Jaywick foreshore at Clacton being particularly relevant (Longworth *et al*. 1971). There was, moreover, little synthetic overview on this specific theme prior to the publication of first Holgate's 1996 summary and, then, Garrow's *Pits, Settlement and Deposition during the Neolithic and Early Bronze Age in East Anglia* of 2006 (though see e.g. Barringer 1984). Directly arising from his involvement with the Kilverstone, Thetford, Early Neolithic pit cluster-site excavations (Garrow *et al*. 2006), the latter has led to a major reappraisal of how such early occupation traces are considered (e.g. see Healy 2013a & b).

In the case of Mucking, as is apparent in its relevant 1993 *Atlas* summary, this is the period when its archaeology seems to have been approached in the most strictly typological and 'checklist-like' manner. This is largely due to the fact that there was limited appreciation of the actual scale of its lithic assemblage and the potential to distinguish earlier scatters from residual-status artefact plots. Indeed, as 'a problem', disentangling such occupation-/use-traces arguably demands the greatest distributional and statistical control of artefacts if meaningful patterns are to be distinguished.

Against this, the site's barrows and Beaker-associated burials obviously received considerable notice. Of the latter, the one burial accompanied by a complete vessel and 11 arrowheads figured prominently in the project's interims and there was even a postcard issued of its grave-goods. No comparably dramatic interments were recovered from its barrows and, generally, these would have to rank as fairly unassuming monuments. As shown in the later Bronze Age summary paper (Jones & Bond 1980, fig. 1), the 'official' barrow count was seven. While another such monument was distinguished during the analysis of the Anglo-Saxon cemeteries (Hirst & Clark 2009, 453, figs. 232 & 234), this would not seem an entirely new discovery as the MPX Bronze Age phase-plan indicates it had already been identified as such (Fig. 1.18). Also significant, as it raises issues relevant to the next chapter, is that the same plan also shows another barrow southeast of Barrow 1, and another MPX archive-dyeline plan has an annotation referring to it as a possible barrow. Eventually determined to be a very large roundhouse – Number 39 – this potential house/monument ambiguity will feature in later, South Rings-related discussions.

With Erith's Ardleigh investigations (Erith & Longworth 1960; see also Brown 1999) clearly informing Mucking's later Bronze Age, Mucking was amongst the first sites in Britain where a fieldsystem of the period was identified; its unequivocal attribution is due to the fact that it was truncated by the South Rings' circles and that the tip of a socketed axe was recovered from one of its boundaries. Due, however, to the 'open' layout of these ditches at the south of the site, they were not at first identified as part of a 'fieldsystem', but as relating to an agrarian settlement (Jones 1972a; Jones & Jones 1975, 139). The recognition of the period's fieldsystem as such only really occurred in the last years of the project when a more gridiron-like arrangement was exposed in the

north (Jones & Bond 1980) and, by which time, other comparable fieldsystems had been found in the region – particularly at Fengate – to further confirm this attribution (see Evans *et al*. 2009, 12–14 for Margaret and Pryor's letter-exchanges on this theme; see also Yates 2007, 23–8).

As will be further discussed below, *the problem* here – and one central to the interpretation of the site's sequence as a whole – is whether Bronze Age fieldsystems extended across the middle portion of the site or if they were only restricted to its southern and north quarter/third respectively. The Joneses' 'take' on this question was ambiguous. On the one hand, in the 1980 later Bronze Age interim paper (Fig. 2.35; Jones & Bond 1980, fig. 2) that swathe was shown without such boundaries (it only being crossed by a double ditch-line now identified as an Iron Age trackway). On the other hand, the early 1980s phase plans include Bronze Age ditches extending across that area (Fig. 1.18). Indeed, Figure 2.1's annotated dye-line clearly shows a fieldsystem 'block' (indicated by shading) continuing southward from the Roman Double Ditch Enclosure-area.

This is a crucial issue as it relates to whether (using Margaret's term) the site was then divided into two 'territories' – one, in the south, centred on the South Rings and another, in the north, that may have continued up to the North Ring-area – or if the system continued throughout. The reason why the determination of any site-central Bronze Age fieldsystem is so important relates, furthermore, to the distinction of a potential Late Iron Age/Early Roman Conquest Period system across that area. Basically, when Mucking was dug only two fieldsystem 'horizons' were acknowledged: Bronze Age and Romano-British. During the course of our analyses, however, there were strong indications that something significant may have been missed. Aside from the 'discovery' of the late Iron Age 'Plaza' complex, the area's Roman occupation may not have simply commenced with the imposition of the Double Ditch Enclosure's formal 'grid', but there may have been an existing system. This is something that we will have to return to on more than one occasion below.

As will be apparent, it has also proven singularly difficult to distinguish just what degree of settlement there was contemporary with the fieldsystem. It is an issue that resonates in relationship to the Late Bronze Age occupation traces also found in the same northern end of the site. While, therefore, its evidence is summarised here, it is yet another theme that will have to be returned to in the following chapter.

Before proceeding there are pragmatic issues to note. First, is the fact that in the pottery's reportage the small amount of Early Bronze Age material was was subsumed into the Beaker and Middle Bronze Age wares (see respectively Gibson and Brown, below), and was evidently never separately studied as a group. Indeed, in the course of our researches we stumbled upon illustrations of what may be a pygmy cup-type vessel (Fig. 2.2). Apparently recovered (presumably in residual status) from one of the Roman Double Ditch Enclosure's boundaries, it seems to have entirely escaped any specialist attention. It, nonetheless, further emphasises that the lack of a distinct register (and reportage) for Mucking's Early Bronze Age is surely misleading; the landscape must then have been utilised, albeit at a low intensity.

The second point relates to the radiocarbon dates. Those achieved for the project were not particularly 'tight' and, like many cited in the specialist texts, were generated at a time when there were acknowledged problems with the British Museum's dating. Though these have been rectified where possible, it nevertheless remains a concern. Equally on this issue, dates cited in the original specialist reports were obviously of 'early vintage' and many were uncalibrated. This, effectively, led to a 'short' Neolithic/Bronze Age chronology and – along with a paucity of absolute dates then generally – clearly influenced both Birley's and Gibson's stressing of the overlap of the Grooved Ware and Beaker pottery traditions. In this regard, the reader is referred to Healy's recent Essex summary-conference volume paper concerning the County's now Early Neolithic to Beaker calibrated date sequence, which emphasises: "Rosamund Cleal's conclusion that, in East Anglia, Peterborough Ware, Grooved Ware and Beaker occur more often in separate contexts than in association (1984, 138) remains valid" (2013b, 15).

The third point relates to how the site's 'chronological cake' is sub-divided. The argument could well be mounted, given the ambiguities of distinguishing fieldsystem-contemporary settlement, that the Middle Bronze Age might be best served by appearing in the subsequent, Late Bronze Age chapter and ending this one with the barrows. While fully recognising this, here chapter-length balance has been the determining factor.

Finally, mention should also be made that, since Mucking's time, where entirely new dimensions have been introduced into the region's prehistory is through its coastal/estuarine surveys (e.g. Wilkinson & Murphy 1995; Sidell *et al*. 2000; Wilkinson & Murphy *et al*. 2012)[1] and, also, the rapid development of Kent's archaeology (e.g. Williams 2007). The latter will feature as appropriate, but is particularly relevant for Chapter Three. Of the former estuarine dimension, it is fitting that we introduce this chapter with Murphy's overview of the site's broader landscape context in the light of recent researches. It can only be regretted that, over the years, no comprehensive 'deep-sequence' programme of palaeo-environmental

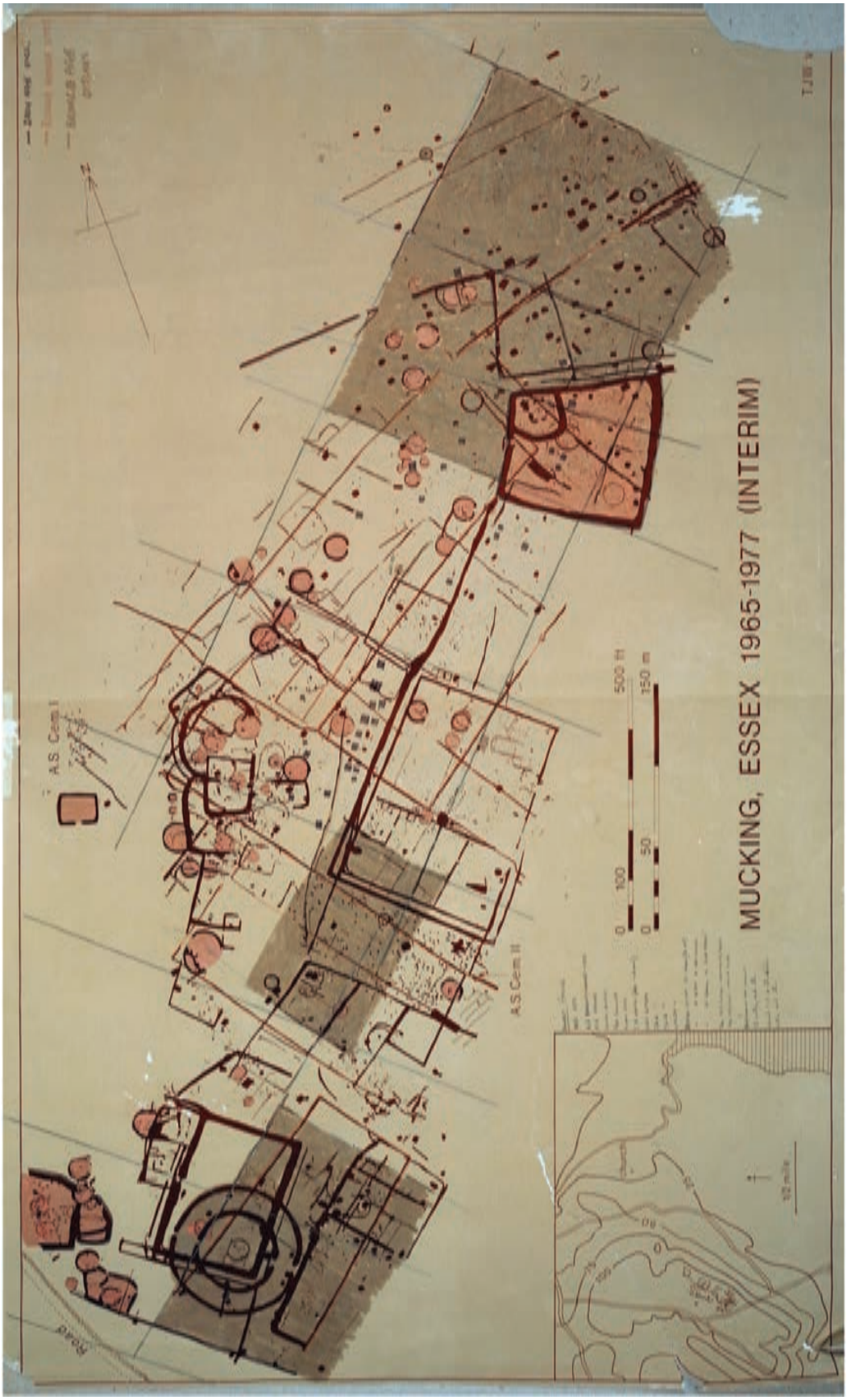


Figure 2.1. Early phasing dye-line showing Bronze Age ditches and Iron Age roundhouses and enclosures.

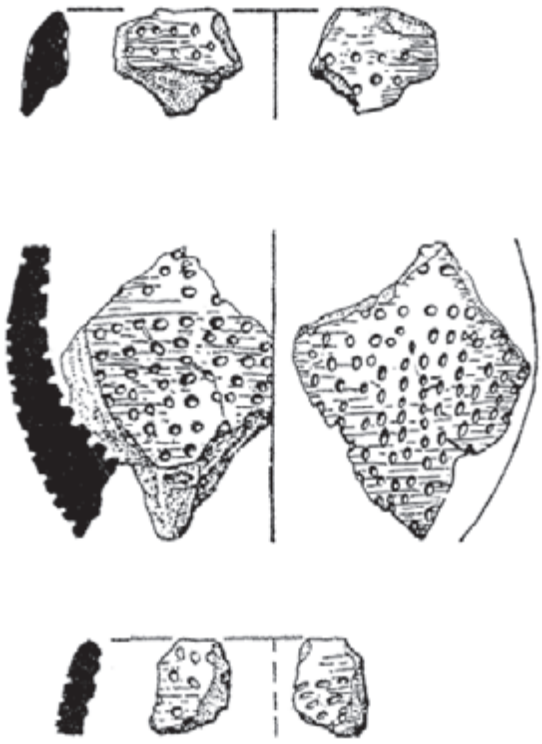


Figure 2.2. Overlooked (?) Early Bronze Age pottery. Occurring as archive drawings (but apparently not appearing in any pottery catalogue; i.e. no record of fabric, etc.*), the question is whether these vessels represent some sort of pygmy cup-like variant or, alternatively, were they Anglo-Saxon? If the latter, then they could relate to the perforated 'woolcomb warmer' sherds that Margaret exhibited at the Society of Antiquaries (1975c) and later published by Hamerow (1993). That said, the Anglo-Saxon sherds have larger perforations, which go right through the wall of the vessel.*

research has been conducted in Mucking's marshes to complement Wilkinson's earlier, local 'upland' researches (1988), though hopefully future London Gateway-related investigations may rectify this.[2] The most likely scenario is that this would have been a transgressive process, with the land below the terrace having been relatively dry during the Neolithic, with marshes encroaching into the area with rising sea levels thereafter (P. Murphy pers. comm.).

Mucking and the Palaeogeography of the Thames Estuary *Peter Murphy*

The multi-period site at Mucking directly overlooks the Thames, and we can be confident that the river and estuary were integral to its development over millennia. The site's geographical context, however, has changed markedly through time. Before the Anglian glacial stage (Marine Isotope Stage 12), beginning around 478Ka, the Thames flowed eastwards across northern Essex, whilst the early Medway flowed northeastwards, roughly parallel to the present Essex coast, with its confluence with the proto-Thames in the area of the modern Tendring peninsula. Glacier ice advance during the Anglian resulted in major modification of the drainage pattern, and ultimately to the development of the present Thames-Medway system (Bridgland 1994, 292–7; Willliams & Brown 1999, 9–11). The stratigraphy of the Thames gravel terraces is complex, and correlation and dating of sedimentary units is subject to repeated re-interpretation, but in the Lower Thames it includes a sequence of formations, principally gravels, ranging in date from the late Anglian to late Devensian (MIS 12–2), the lowest Shepperton Gravels now being submerged or sub-alluvial (Maddy *et al.* 2001). The Mucking cropmark complex is on a ridge of Orsett Heath Gravel, (the equivalent in the Lower Thames of the Boyn Hill Terrace, Marine Isotope Stages 10–12) at an elevation of around 30m OD. Later in the Pleistocene the site would have overlooked successive phases of aggradation and down-cutting of the Lower Thames valley, driven both by climate change and regional uplift, which resulted eventually in the terrace sequence seen today. The site now provides a vantage point over the floodplain marshes of the Lower Thames, including Mucking Marshes, and intertidal flats, with views across to the Kent shore and downstream towards Canvey Island (Bridgland 1994, 173–6; Jones & Jones 1975, 134–6; Wymer 1999, map 12).

In the latter part of the latest (Devensian) glacial stage (MIS 2–4) much of the southern North Sea basin, including the outer Thames Estuary, was land, comprising a lowland area of soft geology, drained by the former seawards extensions of the Rivers Stour, Blackwater, Crouch, Thames, Medway, and their tributaries. The general course of offshore palaeochannels representing the drainage system during the Devensian glacial stage, at a time of sea-level low-stand, was first defined from bathymetric and other data by D'Olier (1975), and this picture will be refined using new survey data acquired as part of the Marine ALSF-funded Regional Environmental Characterisation of the Outer Thames (www.marinealsf.org.uk) once seabed maps have been completed. Further north, 3-D seismic data from the western part of the southern North Sea, originally acquired for the hydrocarbon industry, have been used to map a very extensive area of Mesolithic submerged land surface, covering some 23,000km^2 of the modern sea-bed, in Birmingham University's *North Sea Palaeolandscapes Project.* This defined a length of 691km of submerged Mesolithic coastline (Gaffney *et al.* 2007). Three-dimensional seismic data are not available for the palaeo-Thames catchment for the simple reason that no hydrocarbon extraction has

taken place there. In more general terms, models of submergence of the North Sea, derived from sea level index points and submerged topography, have been developed. High ground on the low-lying North Sea plain, including the Dogger Hills, became isolated as islands by around 8700 cal. BP, and was finally submerged around 7500 cal. BP to form the modern Dogger Bank. The Dover Straits were submerged around 7000 cal. BP, and fully marine conditions had been established over most of the southern North Sea and Channel by around 6500 cal. BP (Lambeck 1995; Shennan *et al.* 2000a & b; Ward *et al.* 2006). Over this time the geographic context of the site at Mucking underwent massive change: from being on a terrace above a freshwater river with a coast far distant to the north, it became a site overlooking a developing estuary.

The general trend of rising relative sea level through the Holocene resulted in estuarine and marine conditions extending progressively inland, but not continuously, in a broadly threefold process of submergence, which is detectable in the Thames, Severn and Southampton Water (Long *et al.* 2000). From around 8200–5700 cal. BP, mean sea-level rose rapidly from around -9m OD to -4m OD, and estuaries expanded, submerging freshwater wetlands, and inundating former dryland Mesolithic landscapes. After around 5700 cal. BP, the rate of relative sea-level rise slowed, and freshwater peat-forming vegetation, such as reed beds, began to expand over former saltmarsh and mud-flats. In places, mud-flats became dry, and soils developed on them, providing new land for prehistoric communities to exploit. From around 3200 cal. BP, freshwater coastal wetlands and dryland areas were once more submerged by tidal waters, minerogenic sediments (mainly clays and silts) were deposited, and mud-flat and saltmarsh expanded around the developing estuaries.

The Thames floodplain overlies a very deep sequence of sediments, consisting of freshwater peats and estuarine clay/silts, over 15m thick at Tilbury. Analysis and dating of these sediments enabled Devoy (1979) to define a sequence of transgressive overlaps, named Thames I–V, (when the sea advanced inland and clays/silts were deposited), and regressive overlaps Tilbury I–V (when there was a reduction in the rate of RSL rise and freshwater peats were formed). Of particular archaeological significance is the Thames III transgression, which resulted in widespread submergence of a fringe of coastal land, and sites on it. Neolithic sites submerged during this transgressive event, now lying in the intertidal zone, have been recorded at a number of locations around the Essex coast (Wilkinson & Murphy 1995; Wilkinson *et al*. 2012), in the Thames at Purfleet (*ibid.*, 90–8) and in the Medway at Hoo Flats (Wessex Archaeology 2006, 14). Bronze Age occupation sites have been recorded from margins of the floodplain, and on islands within it, and there were wooden trackways across it. Between the River Lea and Rainham there was an intense and extensive phase of construction around 1600–1000 BC, and trackways of similar type are known from Essex and North Kent (Meddens 1996). Further upstream, the prehistoric river channel at London was originally approximately three times as wide as that of today, but on the Southwark side there were several substantial 'eyots', stable sand islands which were inhabited in the Middle Bronze Age. Diatom analysis of sediments, from sites along the line of the Underground Jubilee Line, indicates that, by about 1200 cal. BC, tidal waters had extended upstream of Westminster, and the eyots were abandoned. By the time of the Roman invasion, the tidal head had migrated downstream, and the eyots were once more habitable when revetted, besides being capable of being linked together to form a bridging point to the north bank (Sidell *et al.* 2000). Estuary-focused economic activities of later prehistoric and Roman date were related to maritime trade, marshland grazing, fishing, salt production and other industries (*vide*, above references). It seems reasonable to suppose that the exploitation of marshland and coastal resources, only about 1km to the west, would have formed part of the site's economy from prehistory onwards, and current work by Oxford Archaeology at a compensation site at Stanford-le-Hope for the London Gateway Port is providing evidence for extensive Romano-British salt production, with some domestic activity in later Roman phases (Anker *et al*. 2010).

Although the outer Thames Estuary had taken up approximately its present form by the Roman period, it seems probable that the main approach was to the south of the Isle of Thanet along the former Wantsum Channel (see Fig. 3.38). This seaway provided a sheltered route from the Continent to London, which avoided the hazardous areas of the Goodwin Sands and North Foreland. Coastal forts were constructed at its southern and northern ends, at Richborough and Reculver respectively. Historical sources demonstrate that it remained navigable until the Middle Ages (Lydden Valley Research Group 2006). We should not, therefore, envisage mariners before then, approaching the Lower Hope below the Mucking site, as having sailed directly up the estuary.

Besides changes related to natural processes the Thames marshes have been extensively modified by land claim, at least since the Early Medieval period (see Rippon, Chap. 6). Charters suggest that embankment may have begun in the eighth century in North Kent, and there is documentary evidence for maintenance of sea-walls from the thirteenth century onwards (Rippon 2000; Williams & Brown 1999, 16). Progressively areas of saltmarsh and mud-flat were

converted to agricultural production. Collation of the historical reports from the Medieval period, however, indicates an exceptionally severe, and sustained, phase of storminess from the late thirteenth century onwards (Fulford *et al*. 1997; Lamb 1995, 191; Rippon 2000, 30–1). From the 1280s to the mid fifteenth century there were frequent breaches of flood banks along the Thames and, in some cases, these were not repaired, partly due to the higher cost of labour after the Black Death of 1349. Some land lost over that period was not once more reclaimed until the sixteenth century (Galloway 2009; Galloway & Potts 2007). Off the coast of Foulness there are routes across the Maplin Sands, which were marked by lines of broom plants, driven into the sand, which gave their name to the main route – the *Broomway.* Place-names associated with these routes, (for example Whittaker, which might mean 'wet carr', i.e. wet woodland), suggested to Muir Evans (undated) that these sand-flat routes perpetuate the lines of terrestrial routes pre-dating the massive coastal erosion of the fourteenth century.

For more recent times, the changing morphology of the outer Thames sandbanks has been reconstructed using bathymetric surveys and charts (Burningham & French 2009). The earliest of these, from the sixteenth century, cannot be geo-rectified and are of variable reliability. However, charts dating from the early 1800s onwards have sufficient detail to be digitised onto a modern base. Within the Central Thames the outer banks have undergone significant depth changes, with lateral shifts and progressive elongation, but overall seem to have remained remarkably stable in their general position. Modern mariners follow the channels established by earlier seamen.

Currently a new phase of change in the estuary is planned, to develop a long-term tidal flood risk management plan for London and the Thames Estuary. The Thames Estuary 2100 project (TE2100), led by the Environment Agency, will once more change the geographic context of the site.[3] New flood management schemes are likely to provide opportunities for increasing understanding of past floodplain exploitation.

Tracings – Mesolithic to Early Bronze Age Activity

The distinction of activity from this time obviously relies largely upon artefact distributions, particularly worked flint. Establishing the latter's exact figure has not, though, proved straightforward. Two statements published by Ian Grahame suggest that there were over 100,000 pieces occurring in 25,000 excavation contexts. This, however, would seem to have been an over-enthusiastic 'guesstimate' and the computer catalogue indicates that actually the total was 26,740. Indeed, though over a sixth of the entries lack grid coordinates (4047) and these essentially relate to machining-derived finds, when plotted it looks 'right' and appears complete (Fig. 2.3).

The 26,740 pieces equate to an average density of 1485 per hectare. While this might seem a high number and their distribution plot certainly appears dense, in truth it would only be the equivalent of 0.15 pieces per square metre. This would be significantly less than values recovered from buried soil-sampled horizons on comparable long-term prehistoric landscape sites, wherein one to two flints per metre-square would be a reasonable average (see e.g. Evans *et al*. 2009, 240–1, table 6.1). By this gauge, Mucking should then have had an estimated 'target' population in excess of 180,000–360,000 flints and, therefore, only between some 7.5 and 15% of its total flintwork may probably have ever been recovered.[4]

In terms of the identification of features of any one period/horizon, residuality is obviously a significant factor and there has not been the opportunity within the current programme to re-examine the attributed finds. While below we note those features that have been designated to their respective periods based on MPX-phase analyses, generally those that are highlighted have more than one period-assigned pottery vessel attributed to them; it being understood that 'multiples' are far less likely to have occurred as residual finds.

As outlined in Chapter One, Mucking is no longer the site you would want to turn to address the subtleties of 'small pit' deposition, whether of Early Neolithic, Grooved Ware or Beaker attribution; rather, the strength of its data rests in the scale of its broad patterning. In this, oddly enough, the sheer density of its cumulative features and, along with it, the resultant residuality of finds is actually an advantage. Lacking in any systematically recovered plough-/sub-soil component – in which it is now known that early occupation spreads are often 'locked up' without significant feature-based expression – the intensive network of the site's later features, in effect, serves as a sampling grid to interrogate these otherwise missing 'horizontal'/surface distributions.

To appreciate the implications of this, Figure 2.3 warrants further consideration. It is noteworthy that even the Middle Bronze Age fieldsystem ditches are visible by their flint values. Otherwise, through residuality, it is the Romano-British compounds and the outline of the Iron Age North Enclosure that are most striking. These distributions are essentially the by-product of the intensity of excavation in any one area of the site. In order to compensate for this, in Figure 2.3 (right) flint deriving from major ditch features has been omitted. In both distribution plots a series of higher value swathes are apparent.

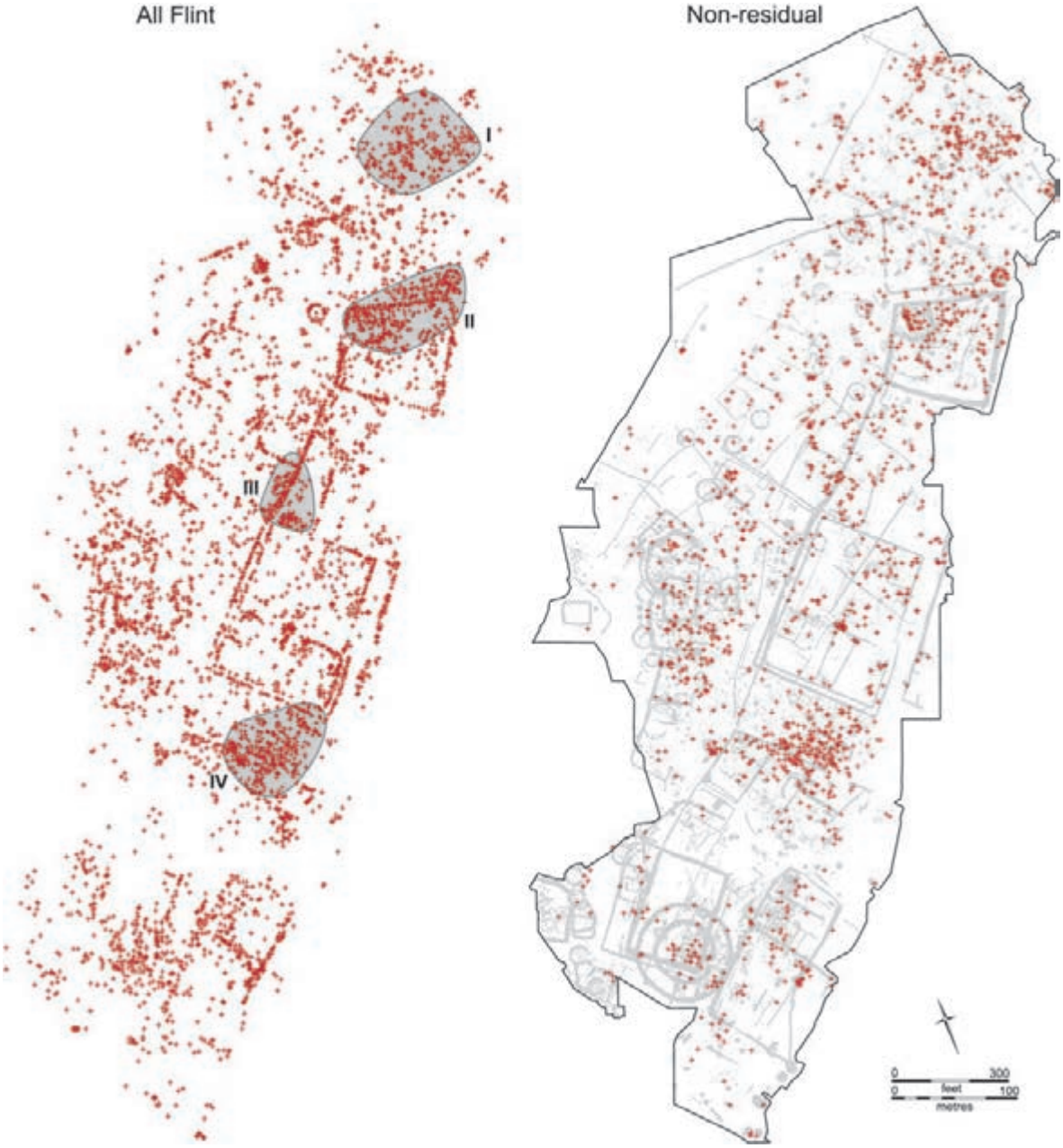


Figure 2.3. Distributions: All worked flint, with Scatter Zones I–IV indicated (left); right, with main ditch system/'residual' occurrences omitted.

Although invariably involving a degree of subjective appraisal – and other, more localised' highs' are also certainly present (see below) – four major 'scatter zones' have been identified, with II and IV having the highest densities:

I) North Field-end (*c.* 5150sqm +; extends north of edge-of-excavation) – 1299 flints (0.25 per sqm ave.)
II) North Enclosure/Barrow 3 (*c.* 4035sqm) – 2175 flints (0.54 per sqm ave.)
III) Mid-Field Zone (*c.* 1765sqm) – 636 flints (0.36 per sqm ave.)
IV) South-Centre (Anglo-Saxon Cemetery II; *c.* 3205sqm) – 2059 flints (0.51 per sqm ave.).

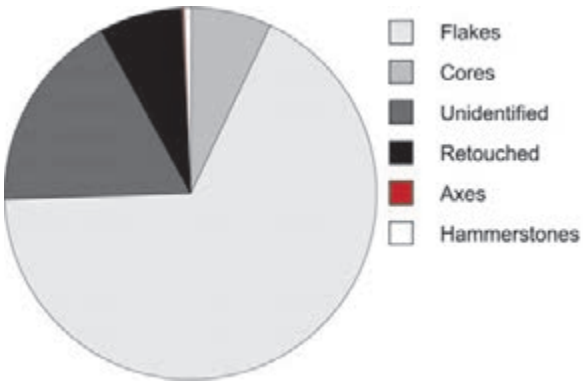


Figure 2.4. Composition of flint assemblage.

Obviously, to try to tease out the character/composition of the site's main scatters will require presentation of its successive 'use-horizons'. Before attempting this, however, it is appropriate that the terrace's flintwork is first overviewed.

The Worked Flint Elizabeth Healey

Chipped stone artefacts were found in almost every context at Mucking, although most are residual. The total number of lithics catalogued in the 1980s numbered just under 27,000 pieces. They have been classified as follows (see Fig. 2.4): cores form just over 4% of the assemblage and randomly struck nodules a further 2.4%; unretouched debitage accounts for well over 60%; pieces with evidence of utilisation or edge-retouch, 9%; traditional retouched tools about 8.5%; the rest being unclassifiable pieces, hammerstones, axes, *etc*. Typologically artefacts of Palaeolithic (hand-axes) to recent date (gun flints) are present, but relatively small numbers were recovered from securely dated contexts of Neolithic, Grooved Ware, Beaker and Middle Bronze Age date. Most of the artefacts come from surface scrapings or residually within house-/ring-ditches, Roman and later features, but it is unlikely that (perhaps apart from some of the Roman contexts) they were associated with those activities.

The aims and objectives of the lithic analysis have evolved during the various phases of study, partly in line with contemporary practice and understanding of the potential of lithic assemblages. The initial intention had been to create a comprehensive catalogue of the artefacts (along with other data) from Mucking to see if it was possible to identify the different periods of activity and to compare what was present with artefacts from other sites, as was common practice in the 1970s and 1980s. This sort of culture-historical approach of matching individual artefacts of similar appearance or type can no longer be sustained in a post-processual world; therefore, for this and other reasons, it was decided to present an overview of the typological categories present and to discuss in detail only the lithics directly associated with the ceramic groups with the hope of elucidating the associated behaviours.

During the excavation each flint or group of flints were given a coordinate reference and recorded in a notebook. Those either from special contexts or that were deemed to be special items were also recorded in a series of dedicated notebooks (NB 55). The initial cataloguing of the assemblage began in 1966 using hand-written lists, but it was quickly realised that a more comprehensive system was required and at this stage the first question-source file (QSF) was drawn up. Each flint was assigned a unique catalogue number and allocated to predetermined categories, such as flake, blade, core, scraper, arrowhead, axe and so on, to try to ensure a reasonable level of consistency over such a large assemblage. The QSF was subsequently developed to include various technological variables (Healey & Catton 1983; Catton *et al*. 1981), although for various technical reasons the final version of the analysis was never brought to fruition. However, attributes relating to technology, such as striking platform-type and other characteristics, bulb-type, distal termination and dorsal scarring pattern and cortex amount, as well as their overall dimensions (using the method recommended by Mercer & Saville 1981), were recorded for samples from the secure contexts.

This approach allows a summary of what was found across the site and the compilation of a 'laundry list' of the types present (the full descriptive catalogues occur in the digital archive).[5] However, as time has progressed and the interpretation of lithic assemblages has changed focus, it is no longer sufficient to establish chronological variation and spatial patterning at an intra- and inter-site level. Interpretations now rest on the premise that objects in themselves do not have intrinsic meaning, rather meaning is contingent on the context in which they were made and used (Thomas 1991a; Hodder 1992; Edmonds 1995). In effect, this means that the context, the selection of raw materials, the way they were worked, as well as what they were made into, and how/where they were made and used must be investigated in a coherent manner so that the artefacts can be situated within the routines and beliefs of the people with which they belong rather than being treated as inanimate objects. The second part of the lithic report will steer more in that direction, while the first portion provides an overview of what is present. It is testament to the excavation and recording methods of Margaret Jones, and her farsightedness and encouragement of detailed post-excavation analysis, that the data-set is robust enough to do this even at such a distance.

As to the condition of the assemblage, the artefacts from discrete contexts such as the Grooved Ware pits are in a fresh, unpatinated and undamaged condition, but some of the less well-contexted artefacts, and particularly the surface material, are quite heavily damaged. This sometimes makes it difficult to be sure that a specific artefact was deliberately retouched or whether the flaking was the result of post-depositional damage (Mallouf 1982; Bradbury 2001). For this reason, and particularly with types like notches, denticulates and edge retouch (i.e. 'tool types' most likely to be generated from mechanical damage), the overall numbers in each type should be regarded as all encompassing, because the intent was to refine the definitions with subsequent more detailed analysis, even though, in the end, it was not possible to achieve this.

A few pieces are very water-rolled and stained orange-yellow or patinated white, including a very large flake (6863.146). One rolled and patinated starch-fractured piece (5953.2) has abrupt retouch along its edge. It is likely that these had been exposed on the surface for a considerable time. Equally, a few pieces have spots of high gloss, probably caused by friction in the soil. Several pieces are also burnt, although for the bulk of the pieces it cannot be determined whether this is post-depositional, so only burnt pieces from closed contexts have been quantified and are discussed in the appropriate section.

Raw Materials

Flint is customarily described by colour, inclusions, texture, opacity, lustrousness and cortex-type. At Mucking the flint is generally mid to dark grey or brown grey in colour, often with blotches and mottles. The cortex is mostly unweathered and thin, although a few pieces have a soft chalky cortex; other pieces have water-worn and/or chatter-marked cortex typical of gravel deposits. The distinctive Bullhead flint, with a ginger stripe between the dark grey flint and greeny black cortex, was also used. Flint of these types is plentiful in the local gravels and it is likely that obtaining raw material did not present much difficulty to prehistoric peoples. There does, nevertheless, seem to have been some deliberate choice of certain types of flint; for example, the axes are made on a matt opaque light grey flint, which is only otherwise occasionally used. Arrowheads are made of dark brown-grey semi-translucent flint, which, where present, seems to have a thin hard cortex and is of good quality flint; the flint used for the artefacts found in the Grooved Ware pits is generally of good quality.

In addition to the lustrous flint, there are also several large pieces of a matt white material: a half-way house between flint and limestone. They are all quite worn and may be the result of decomposition of the flint. All were recovered from surface contexts; there is no clear indication of the use of this material beyond these pieces and they may not be related to prehistoric activity.

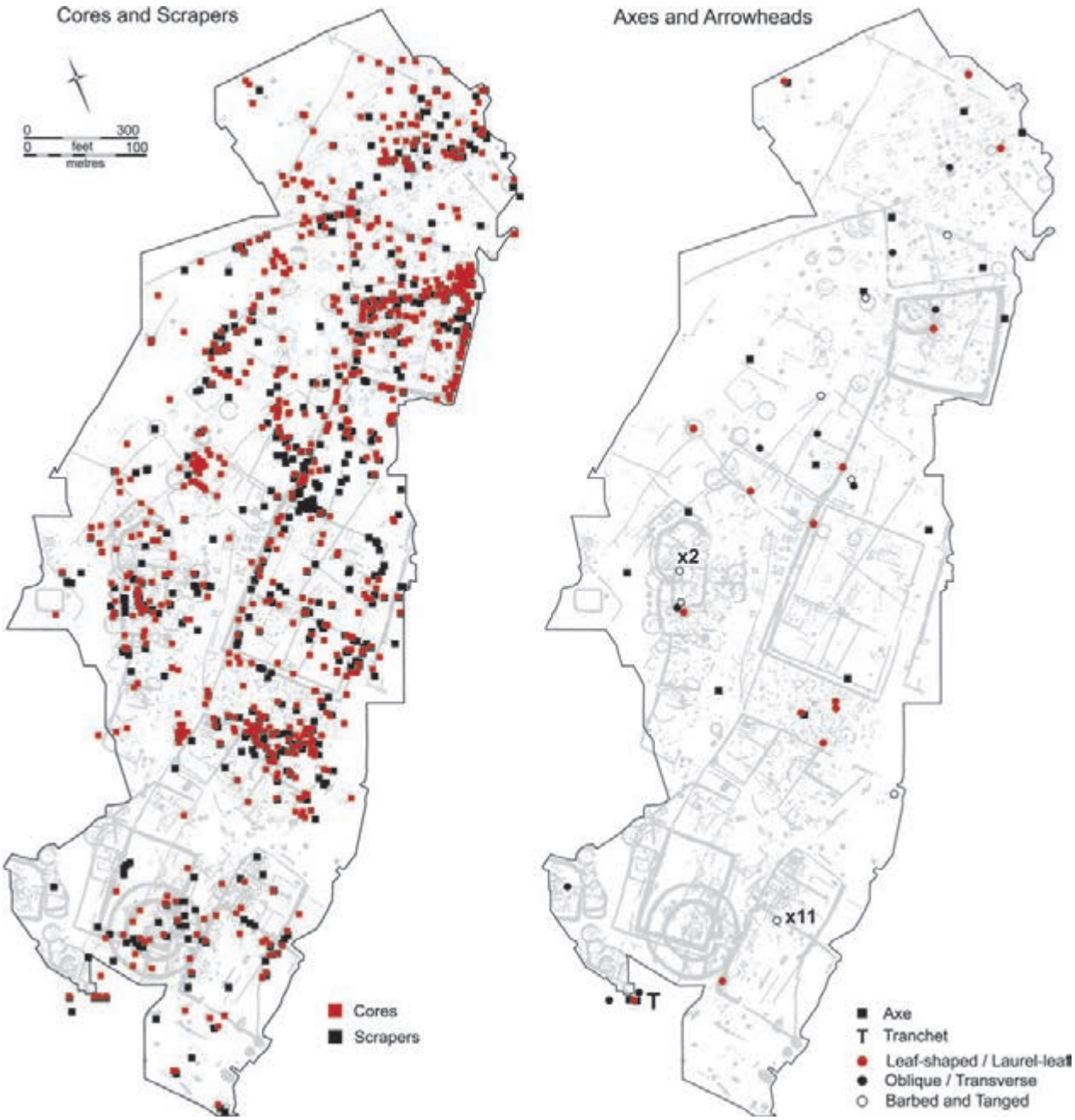


Figure 2.5. Distributions: Cores and scrapers (left); right, axes and arrowheads.

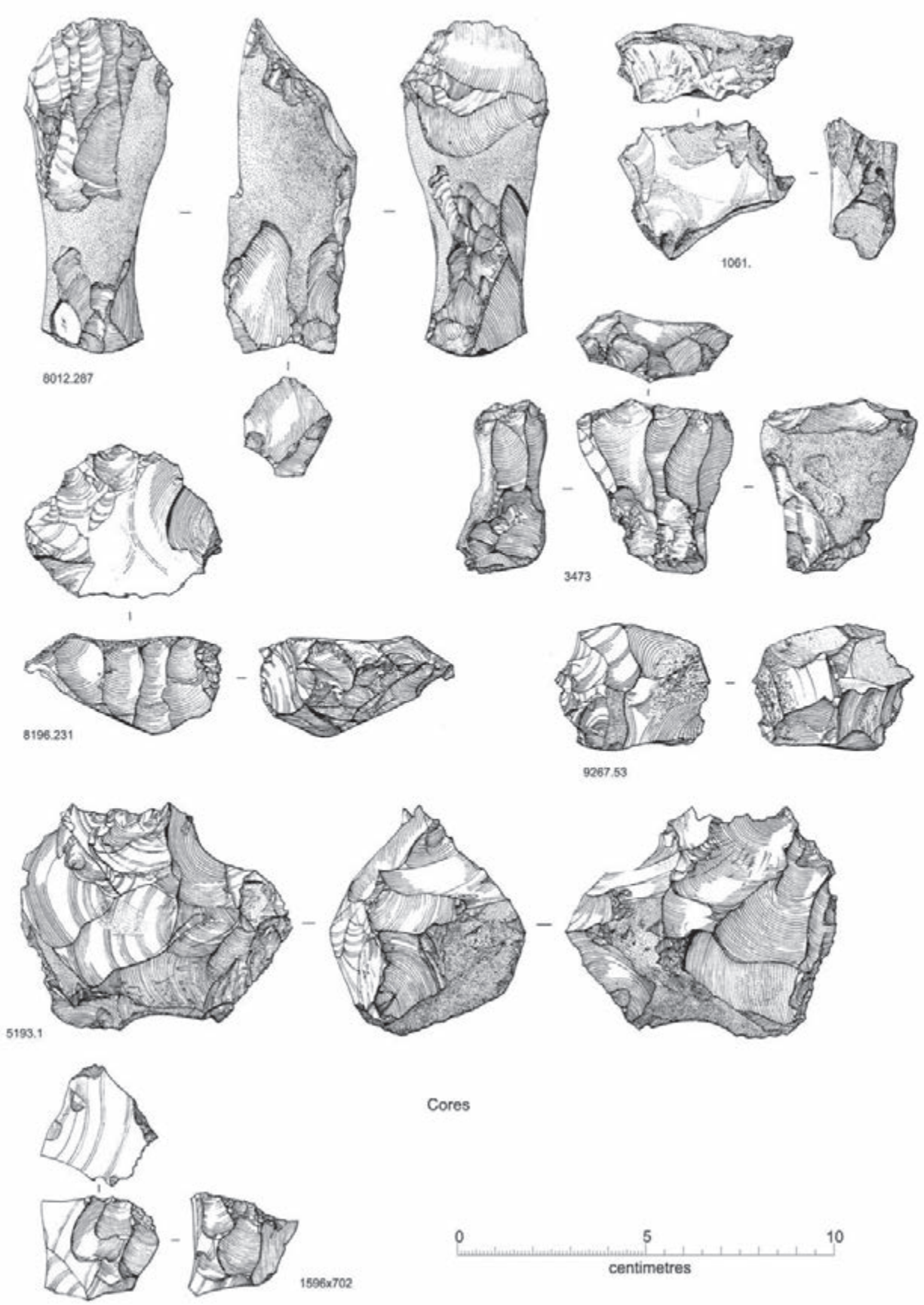


Figure 2.6. Flintwork: Cores (I).

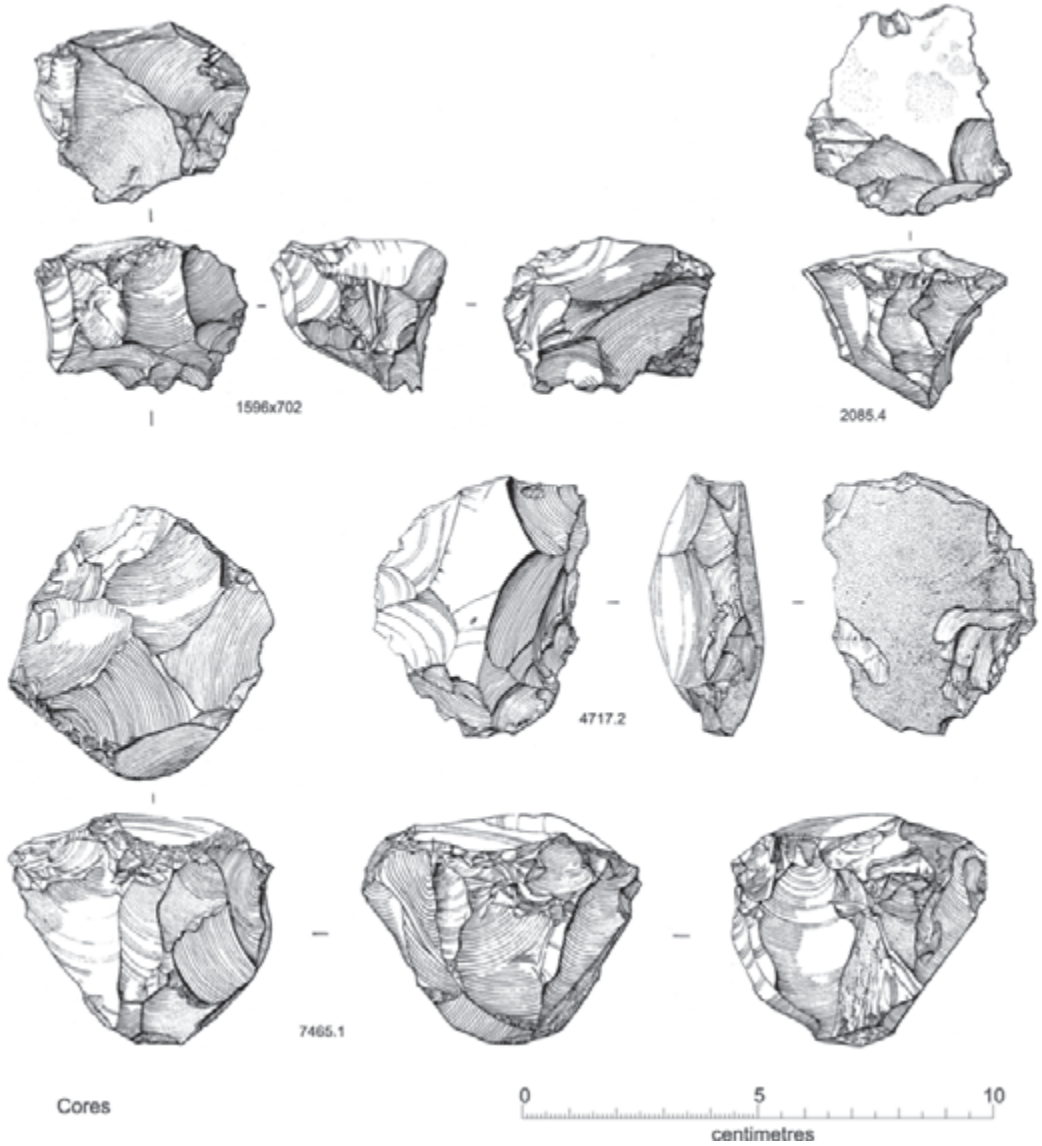


Figure 2.7. Flintwork: Cores (II).

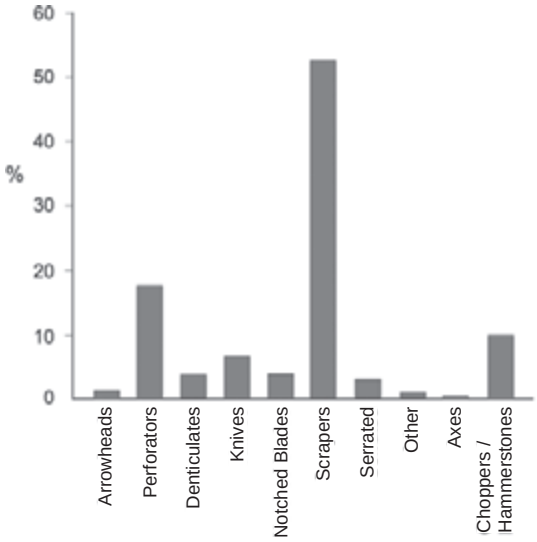


Figure 2.8. Frequency of retouched types.

Technological Characteristics of the Assemblage

Detailed consideration of technology is really only meaningful in specific (and usually discrete) contexts. It is virtually impossible to determine the extent to which core reduction, tool production and use match up from an assemblage gathered from such a multi-contexted and large area as Mucking. For this reason only a general overview of technology is given here. More detailed consideration is given to the evidence for technological characteristics of the artefacts from better contexted loci.

Cores

The surviving cores and debitage indicate that the core reduction trajectory at Mucking was flake-oriented (Figs. 2.6–7; see Fig. 2.5 for distribution). Blade production is rare and even the cores with blade-like scars (8196.231 & 3473) are not truly prepared/organised blade cores. One part-crested blade (55/228; NI) may indicate that more deliberate core preparation and maintenance did take place; there are

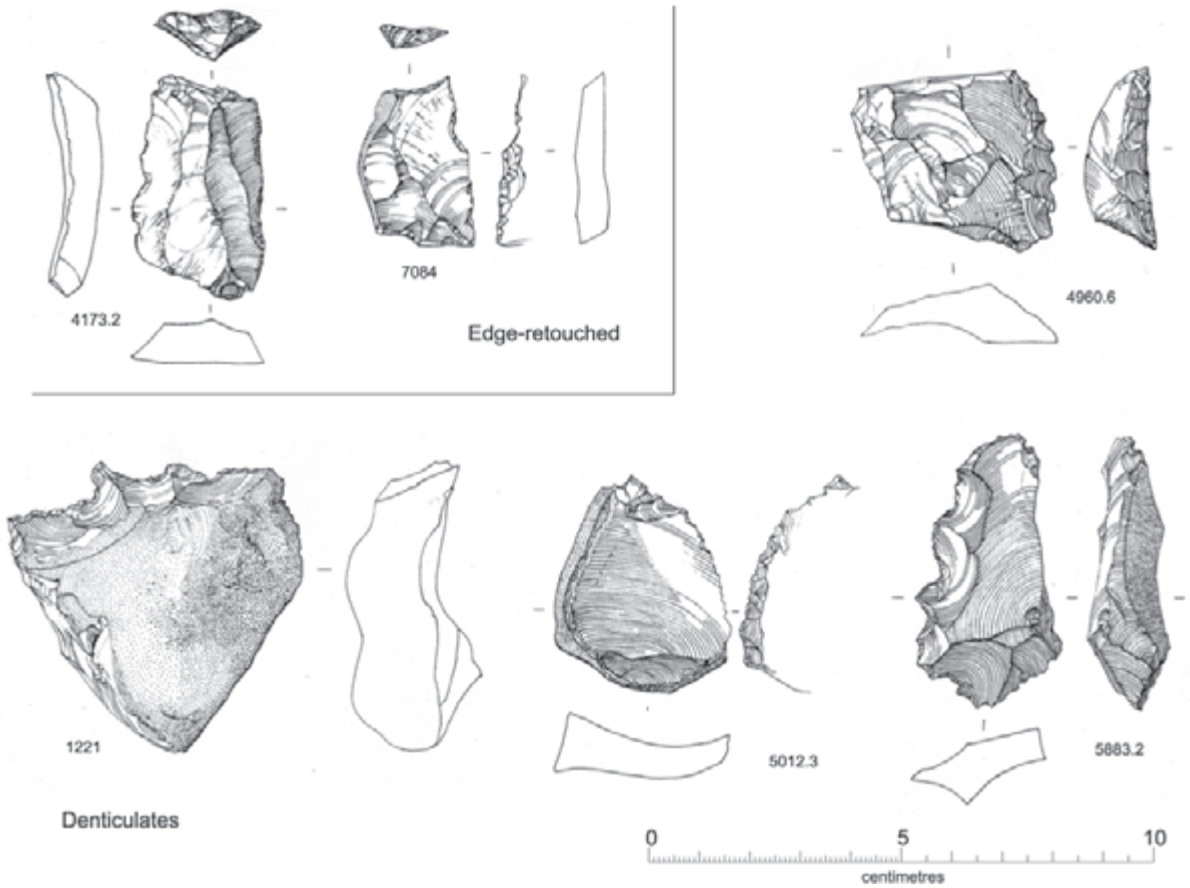


Figure 2.9. Flintwork: Edge-retouched and denticulates.

also a few blade-like pieces, especially among the serrated pieces, such as 3615.6 and 3794.1 (Fig. 2.12). There are also a number of large blade-like pieces, some measuring 120mm (especially among the knives).

Cores are predominantly either single-platform or are globular, exhibiting two or more changes of orientation during the reduction process (5193.1 & 9267.53), some becoming quite small (9267.53) despite the ready availability of raw material. A few are battered as if re-used as hammerstones (7465.1).

Removals

Consistent with the evidence of the cores, most of the removals are flakes. They tend to be relatively small, but there are a few very large pieces with blade-like proportions (e.g. 6605 & 2911 retouched as knives; Fig. 2.11). Most removals have plain striking-platform remnants and resolved bulbs of percussion typical of hard hammer flaking. Occasionally more blade-like pieces have narrow striking platforms and diffuse bulbs, that might be indicative of soft hammer flaking and also, perhaps, of a different reduction trajectory. Facetted butts are very rare. Hinge fractures are relatively common, which would also co-relate with the predominance of hard hammer flaking.

Retouched Categories Present

These are summarised in Figure 2.8. In view of the above caveats, information should be regarded as representative rather than a precise record of the numbers of each type present (further details are available in the site archive).

Edge-retouch

This category includes flakes and blades with flaking on one or more edges, but which does not significantly alter the original morphology of the blank or conform to any particular tool type. As a rule-of-thumb, regularity of retouch over a reasonable length is taken to be an indicator that it is intentional, but sometimes it is difficult to be certain. The edge-retouch varies from abrupt nibbling retouch on the edge (usually straight) of the flake (i.e. it does not encroach onto the surface) to occasional pieces with more invasive retouch.

A few pieces have retouch on their distal ends and may technically be truncated pieces. The two illustrated examples (4173.2 & 7084; Fig. 2.9) have been abruptly retouched across the distal end forming an oblique and slightly concave outline, with the proximal end broken by a blow from the dorsal surface. Both edges have sporadic nibbling retouch.

Conventional Tool Categories

Retouched tools which fall into the categories traditionally used account for between 8% and 10% of the lithics. These conventional, but broad, typological groupings in fact mask a wide range of variation.

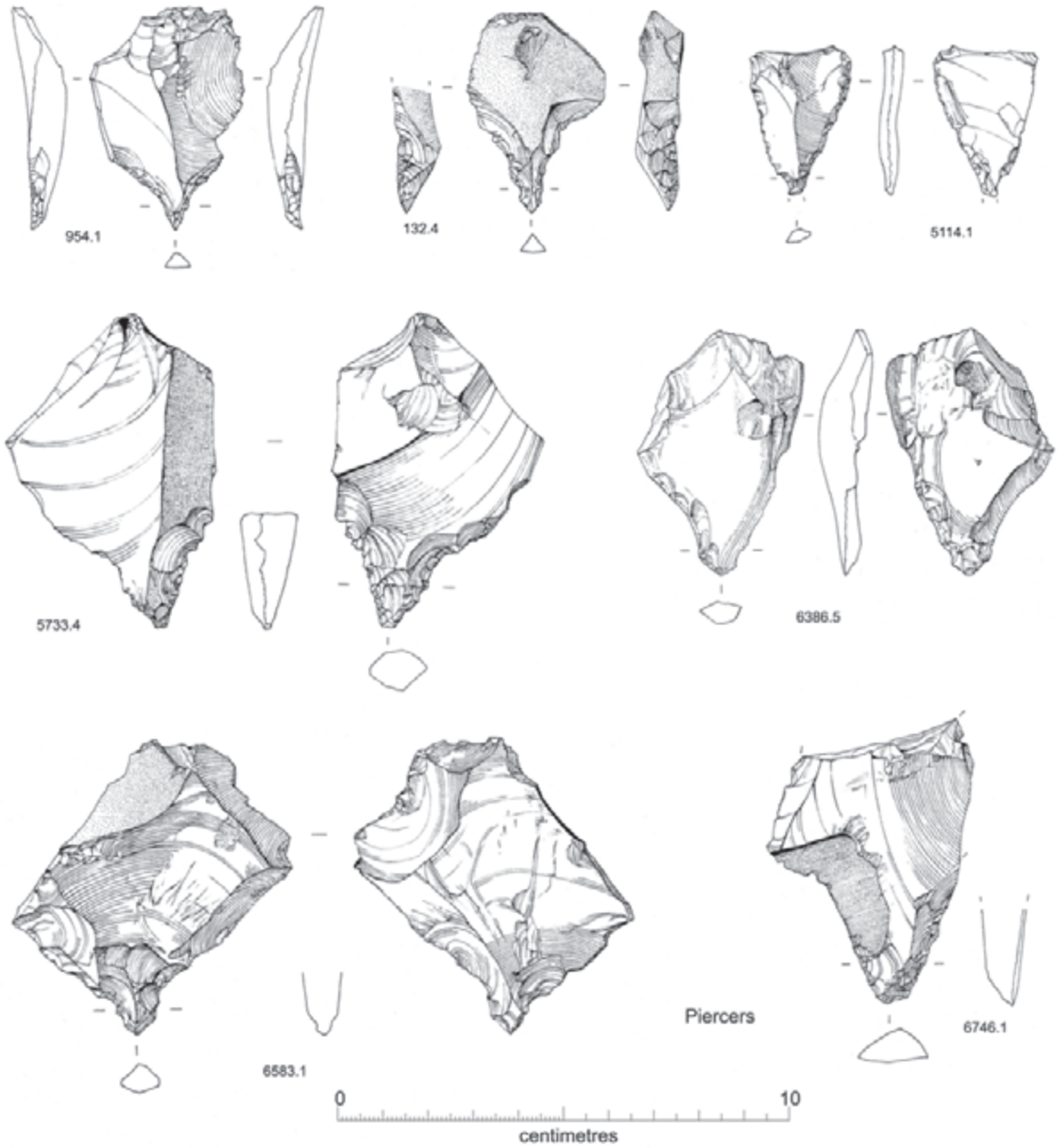


Figure 2.10. Flintwork: Piercer/awls.

Scrapers (49%)

The most common retouched form (over 49% of the retouched pieces). Scrapers are frequently sub-divided by the position and extent of the retouched edge, the type and angle of retouch (semi-abrupt/abrupt) and the shape (generally rounded; Clark *et al*. 1960, Smith 1965, Mercer & Saville 1981 and Riley 1990). Based on these criteria, the scraper types recovered from Mucking can be described as follows (see Fig. 2.5 for overall distribution and Figs. 2.23 & 2.28 for illustrations):

- Retouch on distal end (11.6%). Of these, 70% had a rounded end (the rest being more rectilinear or irregular), and the majority (66%) having an angle of retouch of between 50 and 70 degrees; 18% had angles of less than 50 degrees and the rest were more abrupt.
- Retouch on distal end and continuing a short distal onto one or both sides (34.5%). Of these, 81% had a rounded end, 10% are flattened and the rest irregular; about 63% have an angle of retouch between 50 and 75 degrees, the rest being more abrupt.
- Retouch on distal end continuing along one or both sides for at least half to three-quarters of the length of the blank edge (32.7%). These tend to have a semi-abrupt to abrupt angle of retouch over 90% being in the range 50–90 degrees, though the angle varies depending on where the measurement is taken.
- Retouch on all edges (quasi-discoidal; 3.8%).

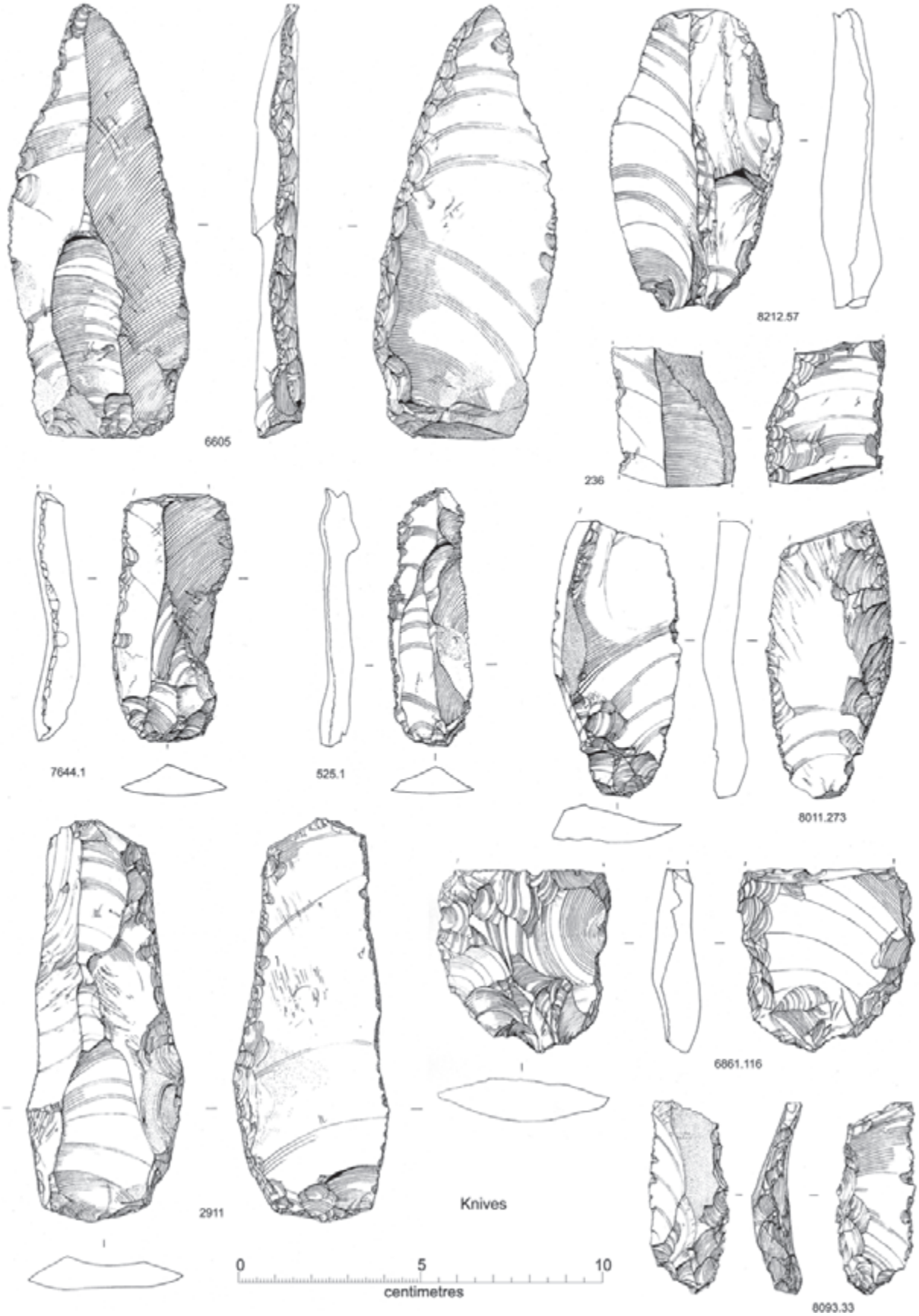


Figure 2.11. Flintwork: Knives.

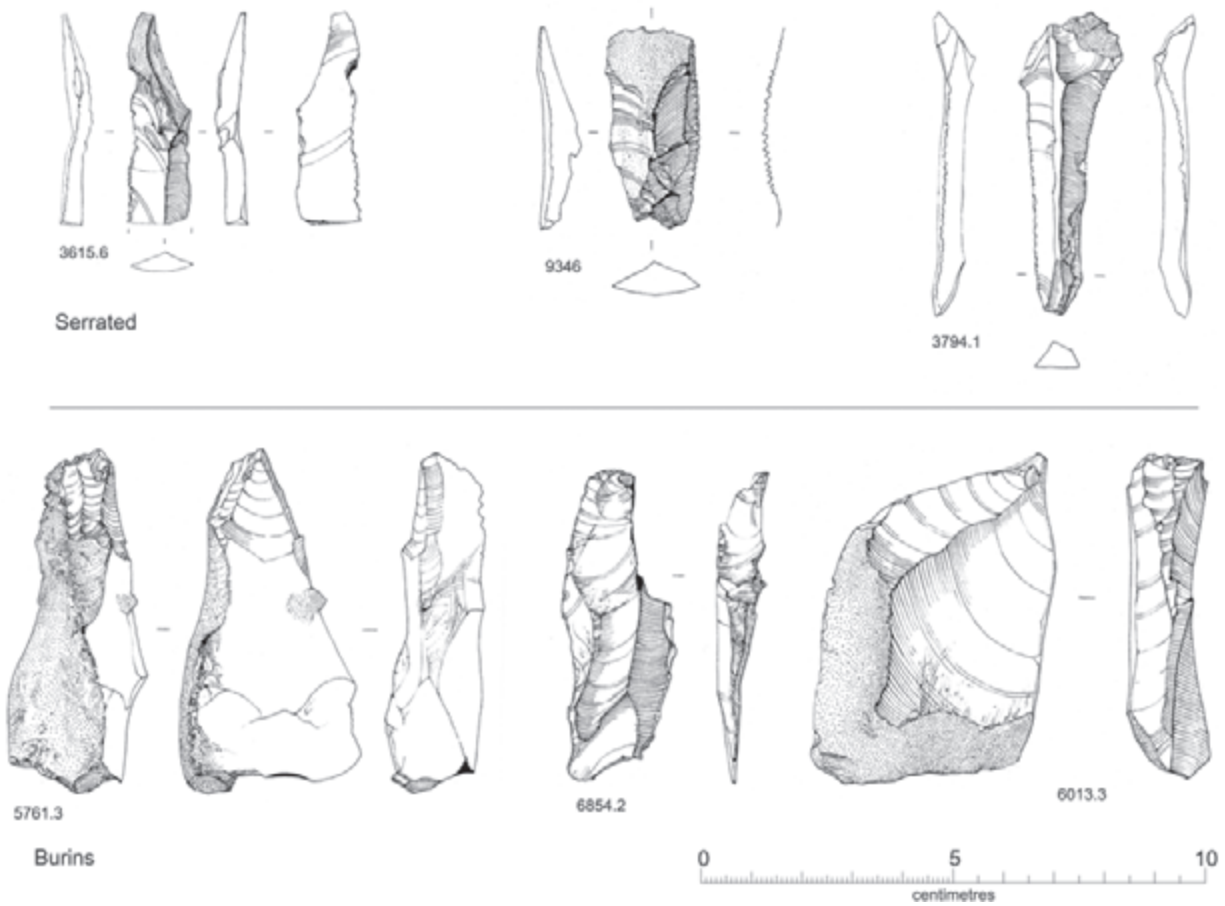


Figure 2.12. Flintwork: Serrated pieces and burins.

- Retouch on the proximal end or on both ends (very rare).
- Retouch on side of blank (3%).
- Retouch from alternating faces (1.7%).
- Indeterminate (11.6%).

The chronological implication of these forms will be discussed in relation to the contexted examples.

Denticulates and Saws (3.8%)
These are defined by a series of widish contiguous notches along an edge (Fig. 2.9). The blank is often irregular or even thermally fractured and quite thick. The notch is usually formed by a single blow, though occasionally there is retouch in them (1221, 5883.2); the ventral surface frequently has incipient ring-cracks on it. A sub-variety is made on flakes and has finer/shallower teeth forming a saw-like edge (5012.3 & 4960.6).

Perforators, Awls and Borers (17.7%)
This category includes pieces that have been retouched to form a point of the type often assumed to have been used in a rotational manner for making holes (Fig. 2.10). A number of different forms are present, including naturally pointed flakes with minimal edge-retouch, flakes on which the point is offset by retouch forming a marked shoulder or concave area (e.g. 954.1, 132.4 & 6746.1). Also, there are thicker quite robust flakes on which the point has been formed by retouch on both faces (6386.5, 5733.4 & 6583.1); elongated drill-like points are rare.

Knives (*c.* 6.5%)
Artefacts categorised as knives have one long, reasonably regular, straight thin edge (the presumed cutting edge), which is retouched, sometimes bifacially (Fig. 2.11). The opposite edge or back may be modified with light inverse flaking (2911), retouched (7644.1 & 8093.33; sometimes sporadically, 8212.57), inversely retouched (8011.273) and backed either with cortex or abrupt retouch (525.1). They tend to be made on larger blade-like pieces.

Knife 6861.116 is an anomalous form. One side is markedly convex, whereas the other edge is straight. It is flaked all over its dorsal face and has inverse stepped retouch on both edges, particularly on the straight edge.

Two of the so-called knives have heavy wear on the distal end and cutting edge and on the convex back; a faint line of gloss was observed on the cutting edge of two knives of the sort associated with cutting silica-rich materials.

Serrated Pieces (1.8%)
There are blanks, usually blade-like (3615.6, 9346 & 3794.1; Fig. 2.12), with regular, fine serrations (*c.* 16 per 10mm; *cf.* Smith 1965, 91) along one edge; they are usually, otherwise, unmodified or have cortex on the opposite edge. Some pieces have a fine line of gloss, of the sort associated with cutting silica-rich materials, on the serrated edge.

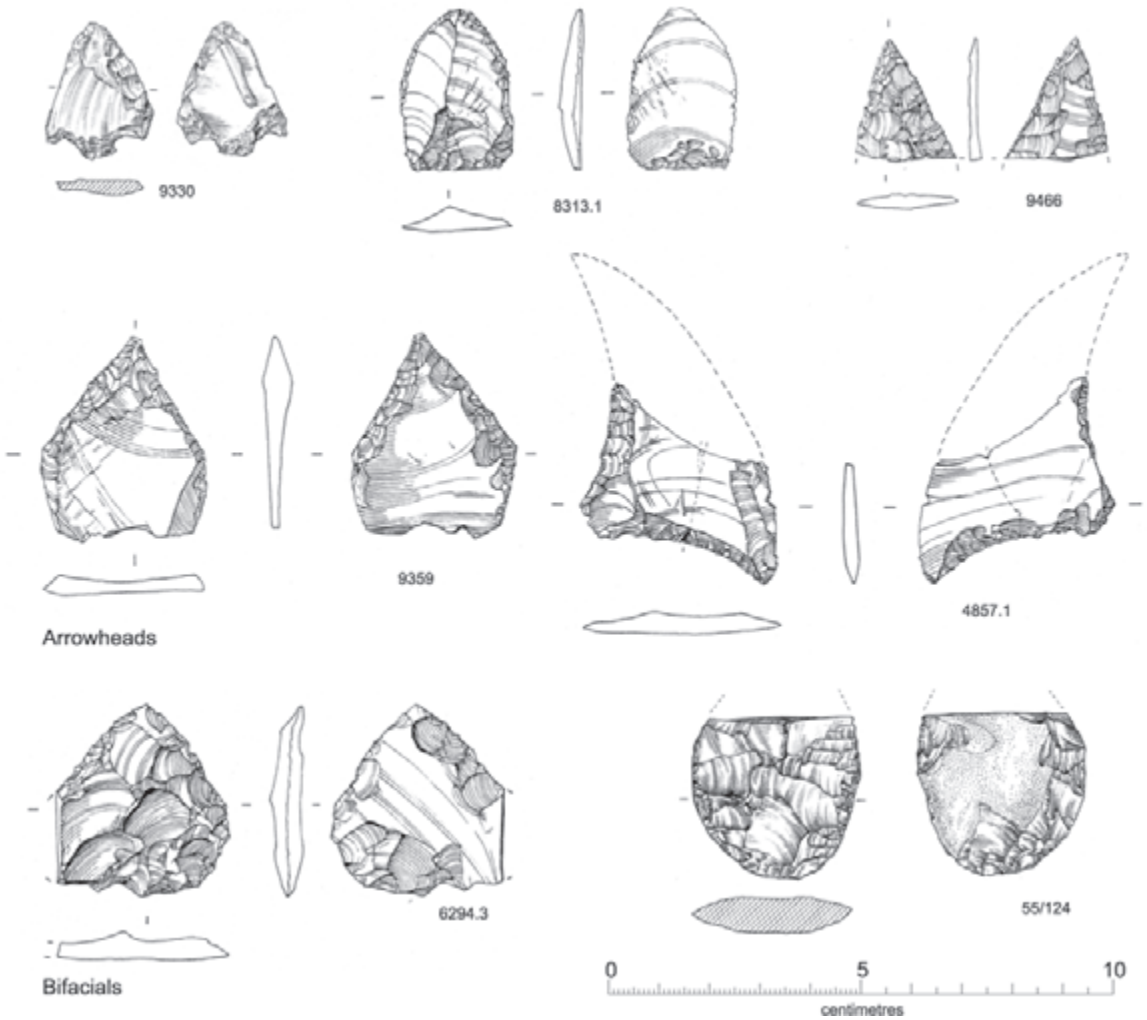


Figure 2.13. Flintwork: Arrowheads and bifacials

Table 2.1. Arrowheads and their context of recovery.

Type	Pits	Graves	Residual	Total
Leaf-shaped	Pits × 3 (8991.24 & 25, 9338)		12	15
Transverse	Pit × 1 (8231.1)		7	8
Barbed and tanged		Grave 137 × 11 Grave 786 × 2	9 (one from the ditch of Barrow 2)	22

Burins (0.1– 0.4%)

Burins are rare. Eleven pieces were recorded as having burin-like facets, but only three are certainly deliberately made (Fig. 2.12). They include two dihedral burins made on a thermally fractured and stained flint (5761.3), and 6013.3, a flake truncated by a transverse blow from which four spalls have been removed. The third is a blade of light grey flint (6854.2), with a possible burin facet at the proximal end, but which could be the result of a knapping accident.

Arrowheads (2%)

The three main types of single piece arrowheads, leaf-shaped, transverse and barbed and tanged, are all present in the assemblage (Fig. 2.13). Mostly they come from the surface or are residual in later features, but a few were recovered from contemporary pits and burials. Their distribution is given in Figure 2.5 and in Table 2.1; the typological grouping is based on Green's criteria (1980 and 1984).

Leaf-shaped (15) – Of the 15 leaf-shaped arrowheads, only three come from 'datable' contexts: a pit or hollow with both Mildenhall and Middle Bronze Age pottery, and another from a Grooved Ware pit. Three are complete or virtually complete (9351, 9361 & 9362 NI). They are relatively small and fall within Green's Types 3 and 4; most are quite squat (Shapes A & B), with only one being slender. One is a classic leaf-shape, one has a straight base and another heavily burnt piece has bifacial edge-retouch that is semi-invasive

on the ventral face forming the point (which is the proximal end of the blank) and the distal end is straight and only retouched on the dorsal surface. Another squat, rather wide flake (8313.1; Fig. 2.13) also has a straight bifacially flaked base, but unifacial retouch around the edges, and may be unfinished or may even have been a blank for a barbed and tanged arrowhead (S. Aldhouse-Green pers. comm.). Of the rest, there are two butt fragments, two middle and two distal, one with a sharp point that is asymmetric in plan (9466; Fig. 2.13). The other is a fragment of a very slender arrowhead, although it has a slightly asymmetric cross-section, whereas all of the rest have lenticular cross-sections; all are bifacially flaked.

One relatively large shouldered piece appears to be the fragment of a large arrowhead (9359; Fig. 2.13). It has a sharp bifacially retouched point (on the proximal end of a flake) with bifacial retouch continuing only on the edges forming a shoulder; the rest of the edge is unretouched and its distal end broken.

Transverse (8) – In the transverse category both chisel-ended and oblique forms are present, including one from a Grooved Ware pit (8231.1; Fig. 2.23). Their distribution mirrors that of the Grooved Ware pottery (Fig. 2.19) and they are likely to have derived from that activity (Green 1984, 34). There are four chisel-ended types (Clark's Types B–D; 1934), two probable examples, as well as two single barbed or oblique arrowheads. One of the chisel types (7256; NI) is a fine example made on the side of a large blank, probably a flake, of good quality dark grey flint the side of which forms the cutting edge. One edge (the distal end of the flake) has been bifacially retouched to form a slight hook where it meets the cutting edge; the opposite side (the truncated edge) is semi-abruptly retouched. The butt is slightly damaged but may have been retouched. Another is made on the distal part of a flake (8016.40; NI). The distal end has a pronounced ripple on the ventral face which has been reduced in thickness by flaking on the ventral surface that continues on one edge while the opposite edge is abruptly retouched. Arrowhead 6294.3 (Fig. 2.13) has been bifacially flaked at the butt end to reduce the bulb and has semi-invasive retouch on the sides; the cutting edge is damaged but has abrupt retouch.

The large oblique form, 4857.1 (Fig. 2.13), has bifacial retouch in the concave area and slightly invasive direct retouch on the edge, with some nibbling retouch on the ventral surface near the break; the oblique cutting edge is unmodified.

Barbed and Tanged (22) – These are the most frequent type of arrowhead, occurring both in burials and as casual finds. Eleven arrowheads were found in Grave 137 and two in Grave 786 (Figs. 2.24–5; Jones & Jones 1975), the rest occurred in the areas where Beaker pottery was also found (Fig. 2.19) and are likely to relate to that activity.

Apart from the arrowheads in the graves, which are discussed below, there are six small arrowheads all of Green's Sutton Type, but which vary in shape from slender to squat. There is a range of retouch: flaking all over both surfaces; all-over retouch on the dorsal surface but less extensive retouch on the ventral; those with part of the original scar remaining on both faces; and more minimal edge-retouch on the ventral face.

In addition to these, made on a flake of good quality brown flint with a small area of thin fresh cortex, another has been carefully flaked all over its dorsal surface and has semi-invasive retouch on the ventral surface (2144.1; NI); it also has what appears to be two incipient notches but which were made after the flaking of the surface. One side of the flake, however, remains unworked and it may be a chisel-ended arrowhead.

One is of unusual form, as it is uncharacteristically long (42mm) and has an unusually long pointed tang (12 mm) and vestigial barbs (9364; NI); also, it is made of different flint from the other arrowheads and is possibly a forgery. Three others are considerably cruder, including a thick flake with the proximal end intact, which has a tang formed by retouch (one side bifacial) in concave areas and abrupt edge-retouch on both edges converging to a point (3538.1; NI). Another, 9330 (Fig. 2.13), appears to be unfinished with crude edge-retouch on both faces and a broken tang, which has been bifacially prepared.

Laurel Leaves (2) – Only two fragments probably belong to the category of laurel leaves. One, 6863.144 (NI), is of a broad leaf-shape and has flat flaking all over both faces. The other, 55/124 (Fig. 2.13), is a basal fragment of dark brown flint; the original flake has invasive flaking on the ventral surface and semi-invasive flaking on the dorsal surface, although a large patch of cortex remains. Laurel leaves are generally considered to occur in earlier Neolithic assemblages, for example, at Hurst Fen (Clark *et al*. 1960), Windmill Hill (Smith 1965; Whittle *et al*. 1999) and Reading Business Park (Moore & Jennings 1992).

Fabricators

These are rod-shaped objects with an area of heavy wear (Fig. 2.14). They have a triangular (8050.108 & 7748.1) or quadrilateral cross-section (3485.1) and are relatively thick for their width. They have been shaped with retouch from all three or four faces; one or both of their ends, and sometimes their sides, are heavily worn. Their function is uncertain, but it has been suggested that they could have been used as strike-a-lights (Stapert & Johansen 1999).

Axe-heads

No complete axe-heads were found, but remnants of 13 ground and polished axes and three flaked axes (at least one of which has a classic tranchet sharpening blow) were found. Their distribution is shown in Figure 2.5.

Flaked Axe-heads (unground; 2) – A tranchet axe (8175.449) is broken and only the blade portion survives (Fig. 2.17). It is made on semi-lustrous light grey flint with large blotchy cherty inclusions. It has been shaped with regular removals at right-angles to its long axis; the cutting edge has been formed by blows that have been struck from alternate edges of each face, forming a concave profile. The cutting edge appears undamaged.

There is also the butt end of a bifacially flaked axe (1345; Fig. 2.15), the estimated breakage point being at about one third of its length. It is also made on light grey semi-lustrous flint but with small dark inclusions as well as large cherty ones. It has a plano-convex cross-section and tapers towards the butt. It may be part of another tranchet axe.

A further small fragment appears to be the end of an axe of dark grey lustrous flint with inclusions and which may have been broken in manufacture (6704.1; NI). It is

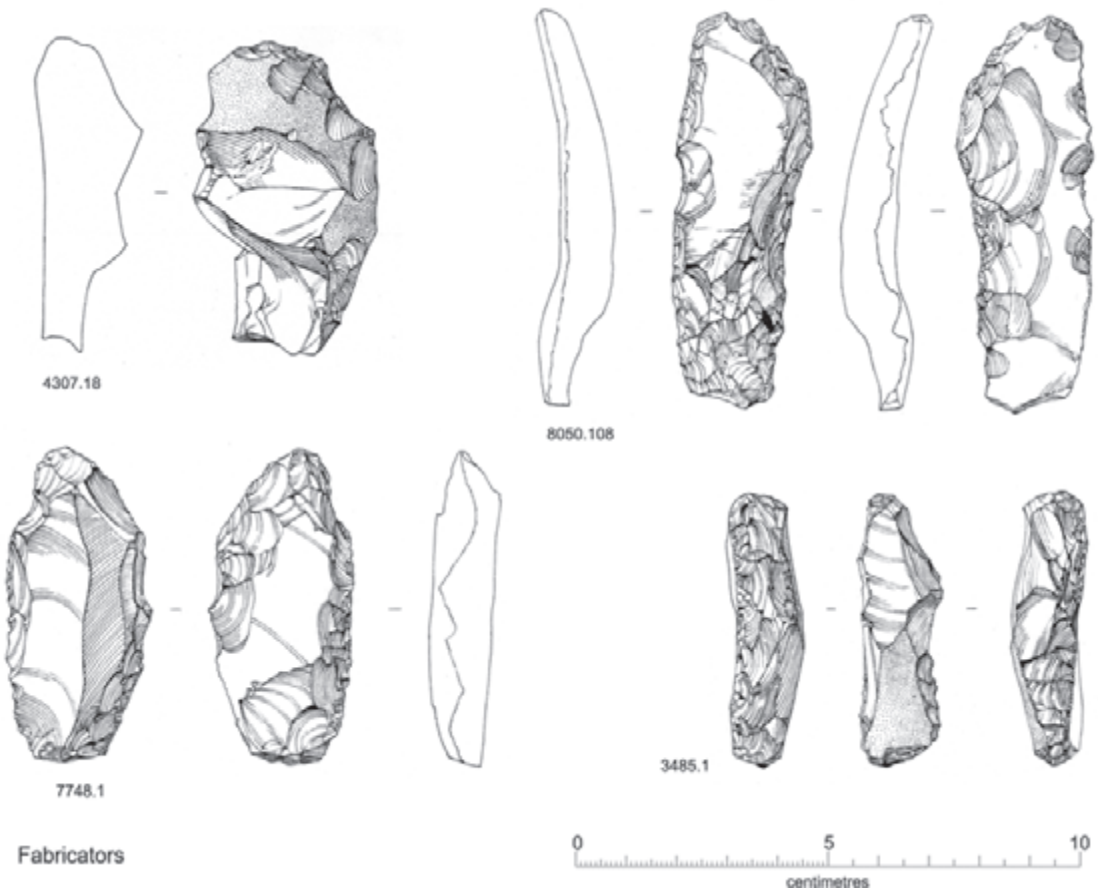


Figure 2.14. Flintwork: Fabricators.

fairly crudely shaped and tapers to the end that is rounded in plan-form. One of the edges has subsequently been retouched from alternate faces to form a point.

Fragments of Ground and Polished Objects (13; all NI) – The distribution of the flakes from ground and polished axes is shown in Figure 2.5; all are from residual contexts, except one found in a Grooved Ware pit. Apart from this, all are made on opaque light coloured flint, mostly with inclusions, that can be quite large and 'cherty', and which is rather different from that used for the rest of the artefacts. One is particularly distinctive in that it is matt and without inclusions.

The ground and polished axes include a sizeable fragment from the blade-end of an axe (7710.1), and two other smaller flakes of distinctive grey flint (159.262 & 6956.1) and on which only a small portion of the blade of the axe survives. The rest are from the surface of the axe: two quite near the edge, but otherwise unreconstructable; another two are quite substantial flakes, one of which has been used as a blank for a denticulate (7517.1). It is possible that 7410.12, which is of good quality dark brown flint, comes from a discoidal knife or similar, rather than an axe.

Choppers and Chopping Tools

Twenty-nine artefacts are included in this category, although some are only flakes. They form a rather heterogeneous group defined by bifacial step fracturing on one or more edges. On fragmentary pieces it is often difficult to be certain whether this is the result of use or post-depositional actions (for example, one with ring-cracks or incipient cones of percussion may have been damaged by the gravel extraction machinery, and some show crushing very similar to that seen on flints from cobbled roads).

Among the more certainly artefactual pieces are two large bifacially flaked objects with crushed edges. Flint 605.1 is a large sub-discoidal nodule (Fig. 2.15; 104 × 88 × 36mm) of dark grey brown flint with cherty inclusions. It has been flaked from one end as if striking a platform, but it is very crushed; its left side and distal end are thinned and battered (the battering on the edges is not like that found on hammerstones and the profile of the edge is not thick and rounded as on hammerstone). The right edge is thicker and unmodified as if forming a back. A large horseshoe-shaped object (115 × 105 × 63mm; 8512.1; NI), made on part of a large nodule of dark brown flint with a thick chalky cortex, has bifacial step fracturing all round the rounded edge and on the prominent bit of the dorsal surface, and is probably also a chopper. Another is a sub-discoidal bifacially flaked object with some cortex (6963; NI). It has abrupt retouch all round its edges, which are crushed. Its more pointed end is rounded with wear, somewhat like a fabricator.

Hammerstones and Pounders (3)

This category includes a large spherical pounder (2453/836)

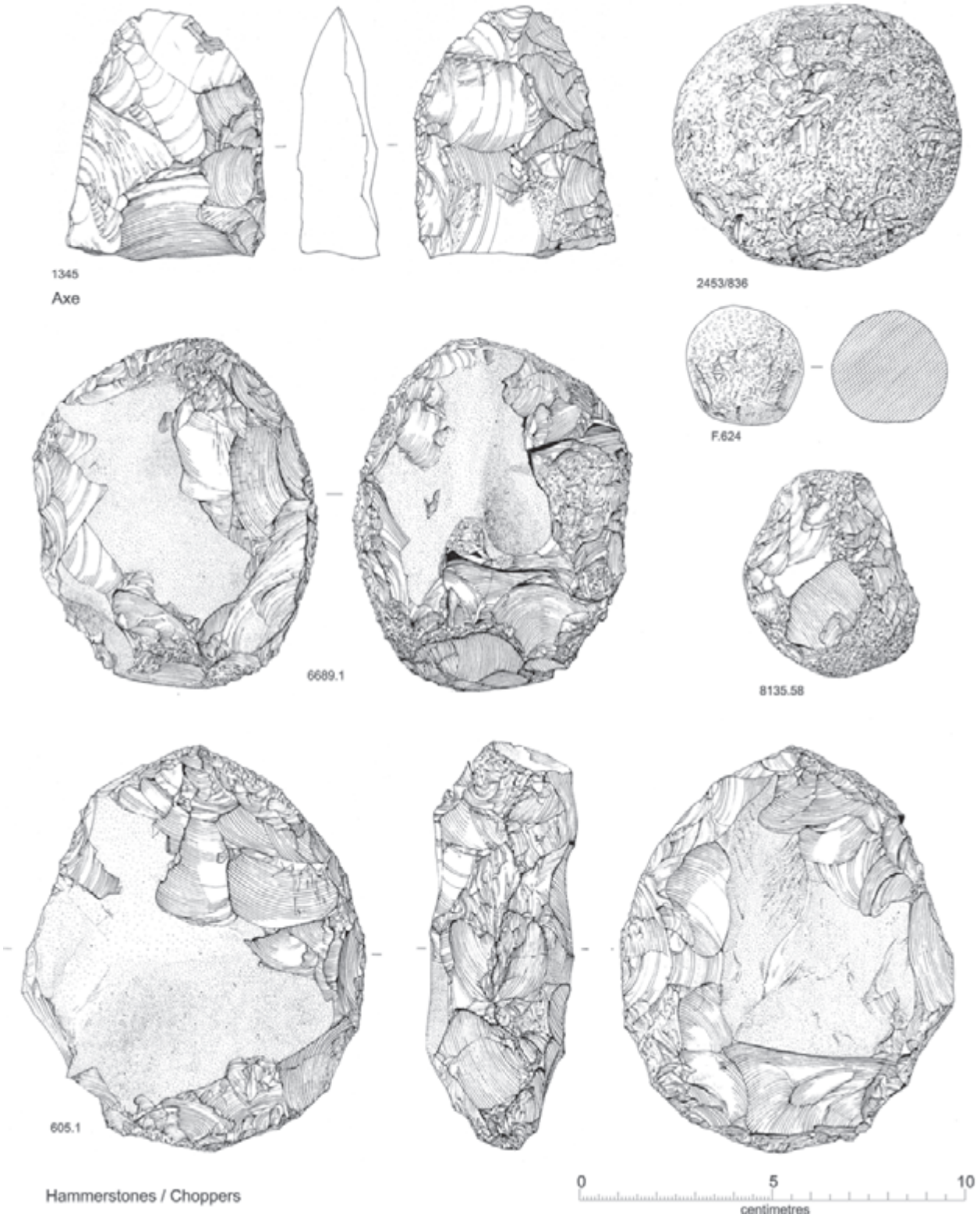


Figure 2.15. Flintwork: Axes and hammerstones/choppers.

with all-over abrasion, a small nodule, possibly partly shaped by flaking (8135.58) with abrasion largely confined to the ends and large, irregularly flaked nodules like 6689.1 with abraded ends and step fracturing on the sides (Fig. 2.15). There is also a small multi-directional core that appears to have been employed for percussive purposes (5773.1; NI). It has ring-cracks on one face and an edge with bifacial step fracturing which has been rubbed smooth.

Hand-axes (3)

Three hand-axes were recorded; however, one is frost-pitted, heavily rolled and stained, and its resemblance to a hand-axe is probably coincidental. A small stained nodule has been shaped to a classic hand-axe shape by retouch on alternate edges and the butt has been left with cortex (4897.1; NI); it is very rolled and stained orange. The third is very fresh and disproportionally thick, and is likely to be of modern manufacture.

There are also two rolled flakes with curved profiles, which are patinated white and could be from hand-axe-shaping.

Microliths (2+) and Microburin (1)

Microliths are very rare within the assemblage; only two definite examples, and a possible microburin, were recovered from different areas of the site. Both are of narrow blade geometric-type; 7684.1 is of Jacobi's 7a Class (i.e. a scalene triangle) and 7627.1 is of rod-form with abrupt retouch on both (parallel) edges and on the ends, which are rectilinear (both NI).

As blades and blade-like pieces are unusual in the assemblage, some narrow bladelets with abrupt microlith-type retouch are included within this discussion. They include 9356 and two blade fragments with abrupt retouch (5838.1 and another with no serial number; NI); another, although unlike the rest of the microlith-related assemblage, is made of mid-brown translucent flint and may belong here. A small and narrow burnt blade fragment (3775.1; NI) has abrupt retouch only on its pointed end (as a micro-piercer) and possibly some on the thicker edge at the other end. A blade of light grey flint (5630.1; Fig. 2.17) has abrupt backing-retouch along one edge and may be a fragment of a larger microlith. Similarly, a blade with abrupt retouch on both edges converging to a point, but not on the point, may be related (8516; Fig. 2.17).

Only one microburin – or rather a mis-hit – was recognised (3782.10; NI). It is the proximal end of a small blade with an abruptly retouched notch on right side and with the retouch continuing along the edge of the blank; it has been snapped above the notch.

A bifacially flaked pointed object (8066; Fig. 2.17) may also belong in this category, but is uncertain.

Unclassifable Fragments of Retouched Pieces

A semi-circular fragment with acute slightly invasive retouch (783.35; NI) has fractured in the heat (it is burnt) from a larger, perhaps sub-discoidal, object, such as a knife.

Gun Flints (2)

Two rectilinear pieces with abrupt retouch are probably gun flints, rather than prehistoric artefacts.

Artefacts with Worn Edges

These comprise a heterogenous set of objects and which have in common some macroscopically visible rounding caused by wear. One group consists of a number of flakes and more blade-like pieces (e.g. 1157.1, 3387.1, 8262.2 & 9081.1; NI) that have parts of their edges worn smooth by heavy use. The rest of the edge is abruptly retouched with short 'nibbling' retouch. Sometimes the wear is on the more prominent part of the edge. Other larger pieces also have heavily worn areas, including a large, heated flaked piece recovered from a *Grubenhaus* (578.1; NI); it has heavy rounding on all the protruding parts, including one face where all the arrises are worn, forming a flat plane as if used in a smoothing action. It is also abraded. Particularly striking is a thermal piece (patinated) in the shape of a scraper, though with the retouch at a rather shallow angle. It is completely rounded on the end and part way down the sides; the lower part is sharp, as if it was held or hafted and not used.

Included under this heading is also an elongated nodule (1985.1; NI) broken horizontally to form a striking platform, and from which some short flakes have been struck and the platform-edge has been abraded and worn. The cortex on the nodule is also shiny and worn in the areas where it could have been held.

Curiosities

Fossils and other interestingly shaped stones, potentially 'manuports', were recovered from some graves, include a fossil echidna found in Grave 492, and another fossil from Grave 106 (unidentified, but possibly a sponge) and a small 'bow-shaped' object from Grave 786 (see Fig. 2.24). In addition, four naturally perforated pebbles were also found which may have been manuports.

As intimated above, the circumstances of the recovery of the artefacts permits only a general typological overview. Furthermore, although retrieval rates from the excavated areas were exemplary, the rescue nature of the fieldwork makes it difficult to be certain that the retrieval is fully representative of the intensity of prehistoric activity (i.e. as it was dictated by quarrying operations rather than research questions). The plots of different types provide a general overview of the areas that might have been occupied and we have assumed that relative proportions are a more reliable guide to prehistoric activity than absolute numbers.

Evidence for earlier prehistoric activity is scant. A Palaeolithic presence is presumed based on three possible hand-axes and some potential sharpening flakes. Palaeolithic activity is well documented in the Thames Estuary (Wymer 1984) and there is no reason to suppose that Mucking was not part of this. Mesolithic occupation is equally ephemeral: two 'pits' were purported to be of Mesolithic date during excavation (1775N × 210E & 1779N × 212E), though they probably attest instead to the utilisation of natural hollows. The presence of microliths and a tranchet axe are, however, unequivocal and, together with other tools such as the burins, indicate activity at least during the Late Mesolithic period. Tranchet axeheads, pebble maceheads and blades/flakes have been found elsewhere in the Grays and Thurrock area (Wymer 1977, 94–5; Jacobi 1980 & 1996).

Neolithic and Beaker activity is more tangible, with ceramic and other evidence complementing the lithics, some of which can also be contextualised

Table 2.2. Flint assemblage composition from attributed features (serrated × 5, notch × 1, flake from ground and polished object × 1; ** knife × 1, flake from ground and polished object × 1 and burnt fragments – non artefacts).*

Features	Total	Cores	Struck nodules	Flakes	Indet struck pieces	Arrowheads	Scrapers	Denticulates	Perforators	Other	Hammerstones
Mesolithic (2)	**91**	2		86	1		1		1		
Mildenhall (5)*	**166**	2		150	4	2			1	7	
Grooved Ware (14)**	**195**	12	2	143	7	3	22 +?2	2		2	1
Beaker (9)	**200**	11	7	158	6		16	1	1		2
EBA (1)	**2**			2							
MBA (6)	**101**	6	1	70			22	1	1		9
TOTAL	755	33	10	609	18	5	63	4	4	9	

(although such evidence only accounts for a small portion of the assemblage). For the Early Neolithic, this includes leaf-shaped forms, the laurel leaves, the serrated pieces and almost certainly some of the scrapers, knives, and fabricators. Identifying earlier Neolithic technologies is trickier (Pitts 1978; Pitts & Jacobi 1979, 171–3; Healy 1984, 83, 99), but it is likely that the flakes with more blade-like proportions belong to this time.

Later Neolithic activity is, again, documented by characteristic implement forms and, in particular, the transverse arrowheads, the denticulates and some of the scrapers and knives, and, perhaps, some of the fabricators. The attribution of these forms is strengthened by the occurrence of these types in the area where ceramic evidence of the period was also recovered. Likewise, barbed and tanged arrowheads occur in areas where Beaker pottery has been documented. Yet, perhaps surprisingly, no knives and only a few small scrapers generally felt to be characteristic of Beaker tool kits have been distinguished. Bronze Age and Iron Age flintworking is masked by the general spread of artefacts and it is difficult to separate it out from other activity in non-discrete contexts; nevertheless, the ceramic evidence would suggest that it must be there (see e.g. McClaren 2008). Later prehistoric activities will be discussed more fully as part of the section dealing with the contextualised lithics.

The natural occurrence of flint in the gravels makes it an easy resource for building – for example, in Roman times – and it is not inconceivable that some of the flakes are derived from stone-dressing (e.g. Whittaker 1999; Conneller 2006). We also know that flint continued to be used for tools (Sunter & Woodward 1987) and is found either as packing material in graves or as amulets (Philpott 1999, 163–4); doubtless due to the sharp edge of the facture, it was also casually used and a similar situation may pertain to the Early Anglo-Saxon period when we know that flint strike-a-lights were used.

Lithics continue to be part of the landscape right up to the present-day (Martingell 2003), as witnessed by the gun flints, the replication of a hand-axe and, finally, gravel extraction itself.

Lithics from Dated Contexts

The lithics from dated contexts, along with other material, present an altogether different challenge to our interpretative frameworks. On the one hand, if one can assume the integrity of the deposit in such contexts (i.e. non-residuality), it can provide independent dating for the artefacts; on the other hand, it limits the scope of interpretation because the reference is only to a specific circumstance of the deposit of the artefacts in the pits, not the circumstances which gave rise to it or how it relates to a wider 'world'. The lithics described here must then be read against such a background.

The chipped stone artefacts from features at Mucking are summarised in Table 2.2.

This brief overview of the lithics from independently dated contexts allows us to contrast different technologies and tool forms, but as numbers are relatively small it does not allow us to extrapolate to the rest of the site.

The predominance of blade-like flakes from the Mildenhall-related features are consistent with the observed tendency for most earlier Neolithic technologies to be relatively long and narrow (Pitts 1978; Pitts & Jacobi 1979; Healy 1984), even if true blade technologies are not practiced. They contrast with the broader and squatter flakes more typical of the Grooved Ware features (Smith 1965 & 1974), whereas Beaker lithics tend to be smaller. Similar characteristics are also apparent in the scraper forms and it is noticeable that much less attention has been paid to the type of blanks chosen for retouch as scrapers in the Middle Bronze Age (*cf*. Young & Humphry 1999).

The high proportion of scrapers in different

Figure 2.16. Distributions: Mesolithic (left); right, earlier Neolithic, with Clusters A–C indicated.

states of use in pits of all periods, apart from the earlier Neolithic, is interesting and suggests that the pits of different periods may have had different purposes.

Mesolithic/Earlier Neolithic

In the site's interim reports the recovery of what was Mesolithic flintwork from the site's 'fossil patterned ground' – the various periglacial silt-filled hollows within the gravels – was noted. Though relatively little diagnostic flint of that attribution was recovered generally, this seems a valid observation. It largely occurred within one area along the northwestern margin of the site. Amounting to some 90 pieces in total, these all derived from natural hollows (centred on 1775N × 210E) and suggest points of 'working'/camp-episodes. As shown on Figure 2.5, two probable tranchet axeheads were also recovered.

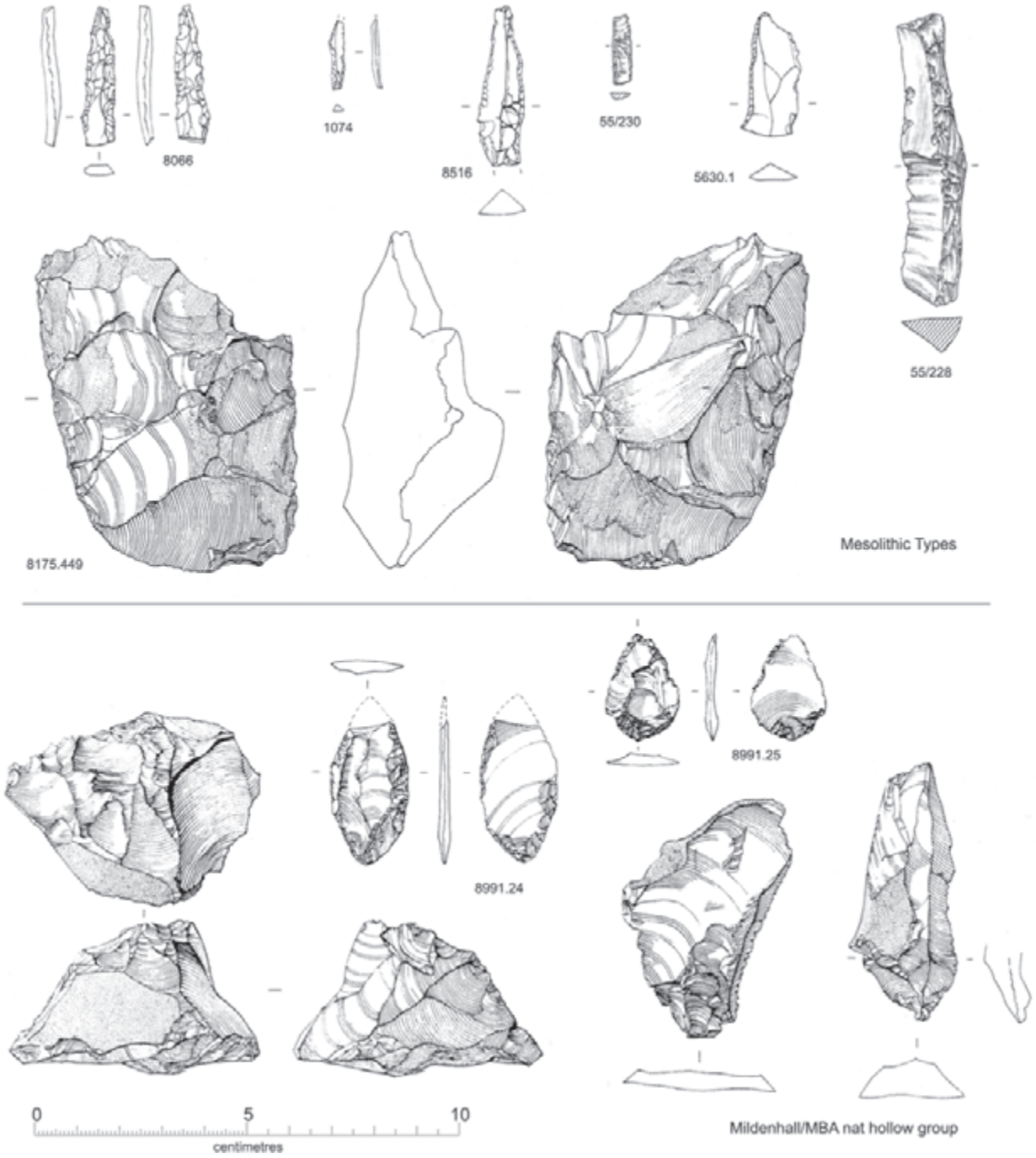


Figure 2.17. Mesolithic and Early Neolithic flintwork.

The succeeding earlier Neolithic flint, as plotted on Figure 2.16 (right), shows a far more widespread and dense distribution, with the same also being true of the period's axes. Its ceramics – both Mildenhall and Peterborough Wares – though restricted to only the northern half of the area, have a similarly dispersed spread. Birley in his original text (see below) remarked that these quantities would only attest to 'presence'; certainly, the area did not see the kind of finds-rich pits now known to be characteristic of intense Early Neolithic occupation/usage (see e.g. Garrow 2006).

In this regard, the distinction of later Mesolithic and earlier Neolithic flintwork is not entirely straightforward. The crux in this case is the assignation of the orthogonal and opposed platform cores. The former are widely held as being particularly early and have, accordingly, been shown on Figure 2.16 (left). In order to express the ambiguity of their attribution they have, however, also been included on the earlier

Table 2.3. Earlier Neolithic flintwork from 'clusters' and 'concentrations'.

Artefact type	A	B	C	1	2	Total
Axehead	2	2	1		3	8
Leaf-shaped arrowhead/Laurel-leaf	2	1	4		1	8
Serrated piece	6	7	7	1	5	26
Orthogonal and opposed platform Cores	3	4	4	6	8	25
Single platform Core	19	43	13	9	37	121
Mildenhall Ware		1				1
Peterborough Ware	5	1				6
TOTAL	37	59	29	16	54	195

*Table 2.4. Flintwork from Mildenhall-attributed pits (*serrated; **serrated × 4; notched × 1; flake from ground & polished object × 1).*

Co-ordinate	Cores	Flakes	Indet	Arrowheads	Awls	Other	Total
1514 × 821		12	1				13
1514 × 822*	1	14				1	16
1578 × 835		1					1
1727 × 776		1					1
2467 × 476**	1	122	3	2	1	6	135
TOTAL	2	150	3	2	1	7	166

Neolithic plot (Fig. 2.16, right). Of the latter, it is clear that the distribution of the orthogonal/opposed platform cores did not differ from the single platform ones. Indeed, where they are markedly concentrated (see 'Scatter Zone II/Cluster B'; Fig. 2.16) was where there was also a distinct clustering of single platform cores; this suggests their chronological overlap. (That being said, it is interesting that little Neolithic pottery occurred in association.)

Taking the period's distributions as a whole, three enhanced 'Clusters' are apparent (Fig. 2.16):

A) Coinciding with the North Field-end Scatter Zone I and extending over *c.* 6700sqm (+).
B) Coinciding, in part, with the North Enclosure-/Barrow 3-area Scatter Zone II (*c.* 8100sqm).
C) Coinciding, in part, with the south-centre Scatter Zone IV (and A-S Cem. II; *c.* 4000sqm).

While such delineation of what are obviously distributional gradients may seem arbitrary, when considered in relationship to Figure 2.3's overall 'scatter zones' they do provide a basis by which interrogate period-specific finds densities and to articulate the early usage of the terrace. In this regard, and also indicated on Figure 2.16, two noteworthy 'concentrations' can similarly be identified:

1) This is assigned to a marked concentration of cores, occurring largely in residual status within features associated with Roundhouse 80.
2) This 'point' indication is misleading, inasmuch as it is clear that not all of the lithic material recovered from the 100' square to the north was assigned a northing grid coordinate (i.e. they were 'lumped' *en masse*); it is, nonetheless, still a high recovery rate from a *c.* 929sqm area.

The material recovered from these respective 'clusters' and 'concentrations' is shown in Table 2.3.

While in the archival texts various tallies of potential Neolithic features were postulated (up to 26, aside from Grooved Ware), in truth there would seem to be only two of any note (Fig. 2.16). The one, 1514N × 821E, had two main fills and was *c.* 1.0m across and 0.38m deep. It yielded six rim sherds from at least three different vessels, and also produced some 28 flint flakes. The other, 2467N × 471E, seems to have been of comparable size; in addition to three rim sherds from at least two vessels, it had a 'homogenous group of flint'.

Of the worked flint recovered from Early Neolithic-assigned features, Elizabeth Healey notes:

> Flint artefacts were recovered from all of the features containing Mildenhall pottery (Table 2.4), but only two (1514N × 821E and 2467N × 471E) had lithic artefacts in any quantity (Fig. 2.16). 2467N × 471E was a large pit or natural hollow whose flint artefacts include a changed-orientation flake core, two leaf-shaped arrowheads that are carefully shaped with bifacial edge-retouch around the ends and partly on the sides (8991.24–5; Fig. 2.17)), blade fragments (two of which have bifacial edge-retouch and three with minute regular serrations along one edge), a piercer bifacially retouched on the point, and 128 flakes. Sixteen of the flakes have blade-like proportions, and another 14 are unusually large flakes. Four have abraded areas on

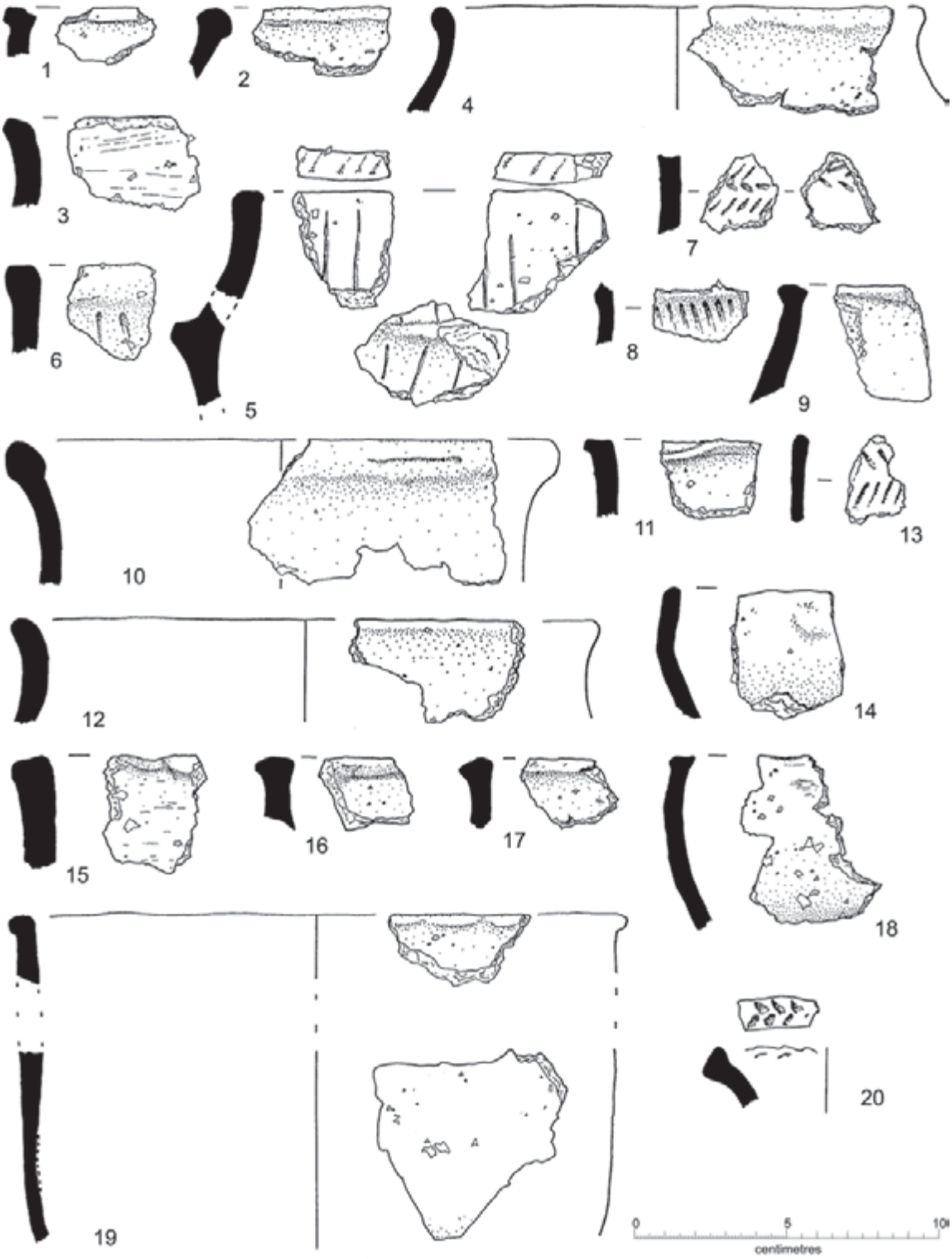


Figure 2.18. Earlier Neolithic pottery.

their outer surfaces and may have been struck from a hammerstone. Although the feature contains both Neolithic and Bronze Age pottery, the flints seem to belong to the Neolithic. Leaf-shaped arrowheads have been recorded from Bronze Age contexts (Green 1984), but it is likely that they belong to the Neolithic activity in this instance. The blade-like nature of the flakes also suggests that the assemblage is predominantly Neolithic (Pitts 1978; Pitts & Jacobi 1979).

Pottery Ian Kinnes and Mark Birley

The following provides a breakdown of the site's diagnostic earlier Neolithic pottery:[6]

NL1 Externally expanded rim sherd; small to medium flint filler and ferruginous sand (2467N × 471E; Fig. 2.18.1).

NL2 Externally and internally expanded rim sherd; small flint filler and ferruginous sand (2467N × 471E; Fig. 2.18.2).

NL3 Everted rim sherd; small to medium flint filler and ferruginous sand (2467N × 471E; Fig. 2.18.3).

NL4 Everted rim sherd; small flint filler and ferruginous sand (1727N × 776E; Fig. 2.18.4).

NL5 Simple rim sherd with a ledge lug on slack shoulder. Decorated with light diagonal incision on rim, and a deep vertical incision on the neck and upper body. Small to medium flint filler and organic inclusions (1056N × 721E and 1058N × 722E; Fig. 2.18.5).

NL6 Externally expanded rim sherd. Decorated with deep vertical impression (possibly with a bone tool) on the neck. Small to medium flint filler (1860N × 782E; Fig. 2.18.6).

NL7 Wall sherd with fine herringbone incision; small to medium flint filler (1159N × 678E; Fig. 2.18.7).

NL8 Wall sherd with a horizontal row of vertical bone(?) print impressions; small to medium flint filler (2249N × 982E; Fig. 2.18.8).

NL9 Externally and internally expanded rim sherd; small flint filler and ferruginous sand (1578N × 835E; Fig. 2.18.9).

NL10 Externally and internally expanded rim sherd; small flint filler and ferruginous sand (1578N × 835E; Fig. 2.18.10).

NL11 Externally expanded rim sherd; small flint filler and ferruginous sand (266N × 264E; Fig. 2.18.11).

NL12 Simple rim sherd; small to medium flint filler (1650N × 670E; Fig. 2.18.12).

NL13 Wall sherd with deep herringbone point impressions; small flint filler and ferruginous sand (2455N × 987E; Fig. 2.18.13).

NL14 Simple rim sherd; small to medium flint filler and ferruginous sand (1514N × 821E; Fig. 2.18.14).

NL15 Externally expanded rim sherd; small to medium flint filler (1514N × 821E; Fig. 2.18.15).

NL16 Externally expanded rim sherd; small to medium flint filler and ferruginous sand (1514N × 821E; Fig. 2.18.16).

NL17 Externally expanded rim sherd; small to medium flint filler and ferruginous sand (1514N × 821E; Fig. 2.18.17).

NL18 Externally and internally expanded rim sherd; small to medium flint filler and ferruginous sand (1514N × 821E; Fig. 2.18.18).

NL19 Externally expanded rim sherd; small to medium flint filler and ferruginous sand (1514N × 821E; Fig. 2.18.19).

NL20 Internally expanded rim sherd, decorated with herringbone bird-bone impressions, with an internal row of fingernail incisions. Small to medium flint filler and ferruginous sand (2290N × 940E; Fig. 2.18.20).

The rare decorated sherds and tendency towards elaborated rims places the NL1 to NL19 examples firmly within the Mildenhall tradition (*cf.* Orsett causewayed enclosure; Kinnes in Buckley & Hedges 1978). Listed above, NL14–19 represent a pit group of some interest as a firmly domestic assemblage. Aside from the body sherds listed below, NL20 is the sole representative of Peterborough Ware (Mortlake) tradition.

NL21 Abraded sherd, perhaps from just below rim in fairly hard smooth fabric decorated with faintly scored vertical lines. Surfaces orange, core black. Temper: crushed calcined flint (<2mm) and some organic temper (1659N × 362E).

NL22 Worn body sherd in hard smooth fabric decorated with lightly incised vertical lines. Exterior brown, interior orange, core black. Temper: crushed calcined flint (<3mm) and a little of either grass or shell or both (1831N × 816E).

NL23 Wall sherd, decorated inside and out with fine 'stab and drag' comb incised horizontal herringbone pattern, in fairly hard laminated fabric. Exterior and core grey, interior buff. Temper: crushed calcined flint (<4mm) and shell (1159N × 678E).

Grooved Ware

Just under 300 sherds of Grooved Ware pottery was recovered (see Birley, below). Its distribution attests to the first definite occupation cluster within the site's sequence as, aside from a few outliers in the north, this material all derived from a 35 × 75m area (*c.* 3000sqm) in the centre of the site, which will be referred to as Cluster D (Figs. 2.19–20). There, it occurred within some 12 pits (0.55–0.8 × 1.2–2.0m; 0.13–0.35m deep), with 2–99 sherds within each (ave. 20); of these, pit 1442N × 547E is by far the most important assemblage. Further discussed by Healey below, lithics associated with Grooved Ware pottery varied (192 in total; plus three from pit 2057N × 652E in the north of the site), though almost all the features had both unretouched flakes and scrapers, with some also having knapping debris. The largest number of flints – 92 (plus burnt flint and thermal-shattered pieces) – including both knapping waste and cores, with a high number of scrapers (14) and other tools, came from pit 1442N × 547E, from which 39 sherds were also retrieved.

Unfortunately, with no radiocarbon dating and no animal bone recorded from associated features, it is difficult to detail the character of the Grooved Ware-related usage. While the quantity of finds would indicate a substantive occupation, its usage may well have been episodic given the dispersion of the features within the larger cluster. It is noticeable that, aside from a sherd within an Iron Age ditch, no pottery of this type occurred residually within the area's later-phased features. As has been observed elsewhere (Evans *et al.* 2009), this could attest to the fact that its inhabitants/users appear proficient in their redeposition of materials. Although, obviously, not all of the individual vessels had been deposited within these features, had much pottery been left within any associated middens or occupation spreads then a higher number of residual finds would have been expected. Having said that, relatively high quantities of worked flint did occur within the main northeast–southwest oriented Roman-phase ditch

Figure 2.19. Distributions: Grooved Ware, with Cluster D indicated (left); right, Beaker, with Clusters E–H and graves indicated.

bisecting the cluster – and the area coincided with Scatter Zone III (see Fig. 2.3) – perhaps suggesting differential treatment of flint and pottery 'waste'.

Pottery Mark Birley

There are 283 sherds of Grooved Ware from Mucking.[7] The vast majority all came from contemporary features within a pit cluster in the centre of the site (Fig. 2.20); the exceptions are from outside this area to the north and were residual in later contexts.

The entire assemblage from the central area shows considerable homogeneity, particularly in the rim forms, which are inturned, simple, rounded or pointed in profile. The one exception, GW17, with its internal, decorated applied (?) bevel appears only to be an elaboration on the common theme. Another consistent feature is the prevalence of small hemispherical bowls. Although only one can be reconstructed (GW4), the curvature of many other sherds would indicate that these were also small bowls (e.g. GW19 & 29).

Straight-sided splayed or bucket shapes are also present, and, although only two are especially obvious (GW14 & 27), it appears that the vertical applied cordons are unique to this form (e.g. GW33). Although we must be aware of the small size of the sherds, none show any curved profile. It may be that this is a functional element intended to reinforce the sides of the vessel to ensure their straightness, but the absence of

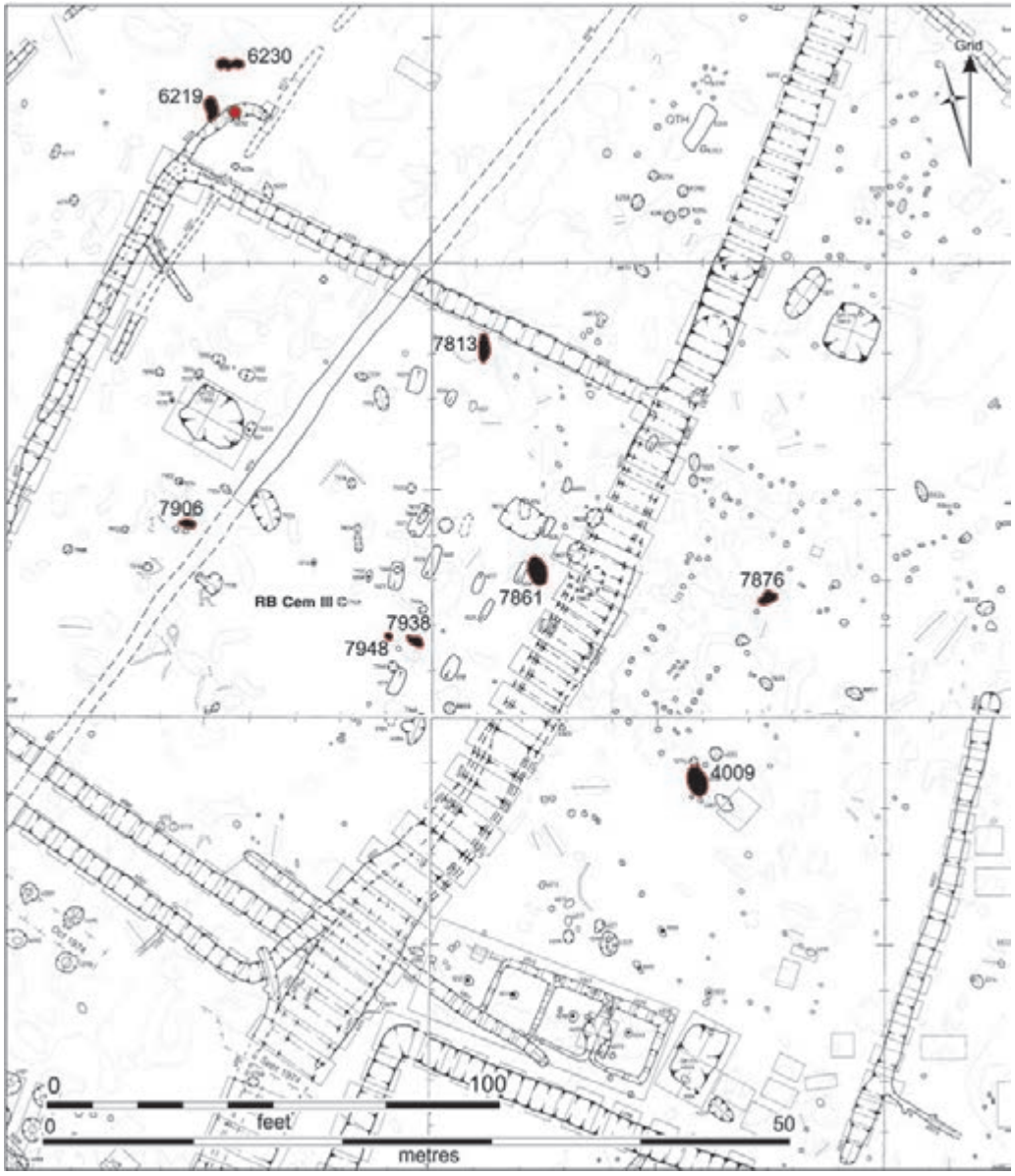


Figure 2.20. Grooved Ware pit group (Cluster D).

horizontal cordons is unusual since these might be expected to be more effective.

Similarly, the twisted cord impressions around the rim appear to be unique to the bowl forms (e.g. GW4, 7 & 14), perhaps also to support the shape before firing. Obviously this does not mean that all straight-sided vessels had cordons and that the hemispherical bowls all have twisted cord impressions. They do not, which in turn indicates an aesthetic motive behind their use over and above any functional asset.

Neither the incised nor the finger-impressed sherds are particularly complex in their design. In all instances of finger impressions, whether fingernail (e.g. GW4 & 22) or finger-pinched (e.g. GW38 & 45), their arrangement is quite random, although (and allowing for sherd size) each type of finger impression appears to be the only type used on an individual vessel. The use of incision demonstrates some intention of design, but is clumsily executed, for instance, the spiral design of GW14 is rather abruptly crossed by a vertical line, and the diagonal lines (? opposed) of GW29 are very lightly incised. This said, it is worth noting that the incisions on GW32 and GW52 are more careful and occur inside the vessel, a feature which finds a parallel in a bowl from Grimes Grave (Mercer 1981) and at Hengistbury Head (J. Gardiner pers. comm.).[8]

The sherds found outside the main area of Grooved Ware finds are too few to draw any significant conclusions. However, the horizontal cordon and the careful moulding of the cordons of GW55 are not matched by any sherds from the main concentration, nor is the stab and drag-combing over the rim of GW52. The spatial separation between these sherds and the main area, and their intrinsic decorative differences do suggest they belong to a different phase of the site's history but are too few for any more precise statement; they are best treated as a separate, though unfortunately undefinable, group.

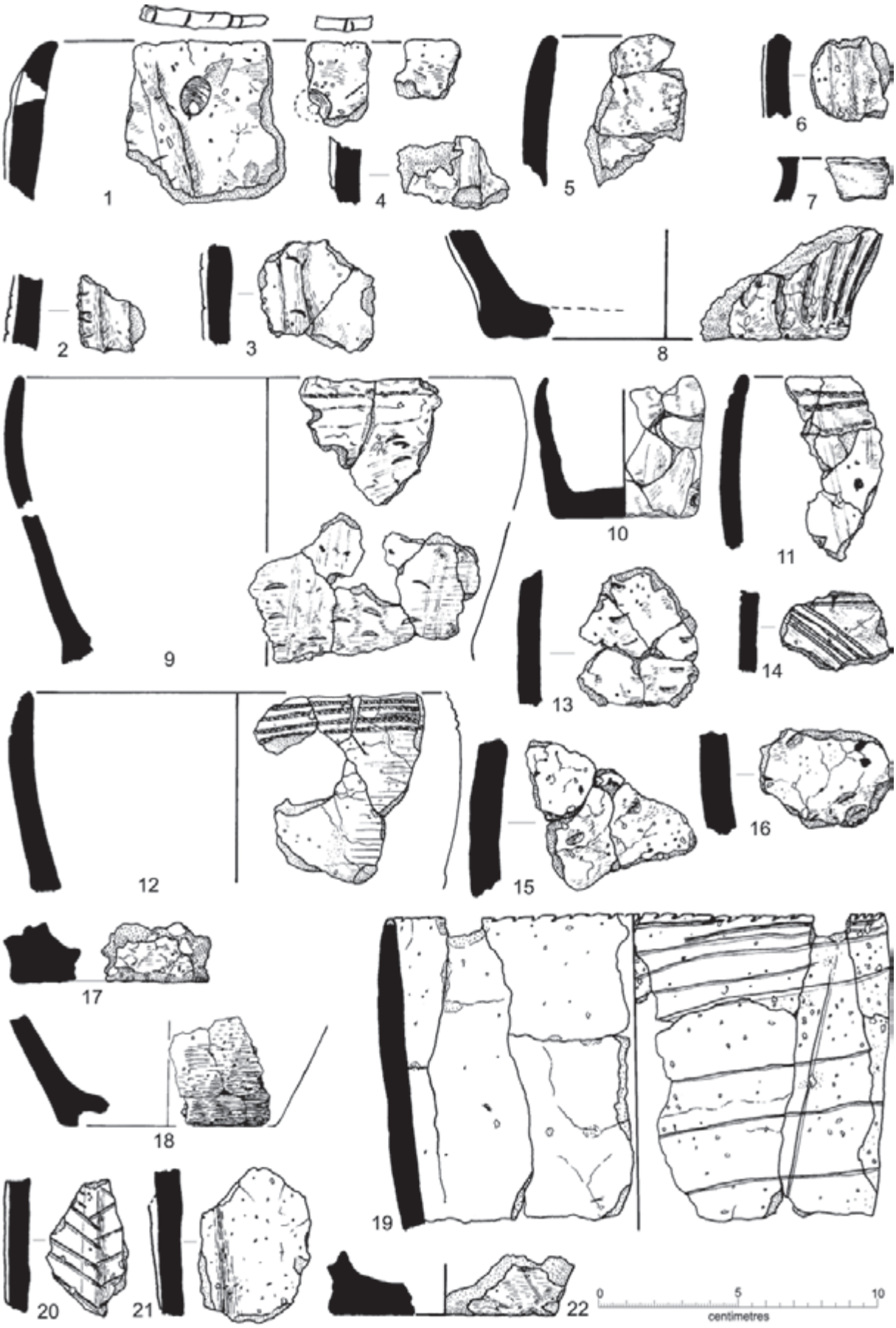


Figure 2.21. Grooved Ware pottery (I).

Figure 2.22. Grooved Ware pottery (II).

Taken as a whole, the assemblage does not fall readily into any of the sub-styles defined by Longworth (Wainwright & Longworth 1971). The most that can be said, using his scheme, is that some of the decorative techniques are typical of one or another sub-styles: the twisted cord and cordons being typical of the Durrington Walls sub-style, while the finger impressions and incisions are typical of the Clacton sub-style (*ibid.*; Longworth *et al.* 1971). It is, however, also the case that two 'typical' techniques of each sub-style may be present on the same sherd, (e.g. GW27 & 33), and there is no instance in which we can identify any of the specific designs 'typical' of either sub-style.

The difficulty of discerning any of the design elements of Longworth's 'classic' styles is not unique to Mucking, but nor are the 'classic' styles confined solely to their respective type sites. Rather, there appears to be a stylistic degeneration in the Grooved Ware tradition. Although not many, there are radiocarbon dates to support this suggestion. Maumbury Rings has produced dates of 1700 bc ±70 (BM-2281) and 1690 bc ±70 (BM-2282; Bradley pers. comm.)[9] and its Grooved Ware carries little decoration other than plain vertical cordons (J. Thomas pers. comm.). At Low Caythorpe, Yorkshire, a pit produced undecorated Grooved Ware and a date of 1690 bc ±70 (HAR-2146; Pierpoint 1979),[10] while Cleal has reassessed the pottery from Playden, Sussex and attributed Piggott's vessels A1 and A2 (in Cheyney 1935) to the Grooved Ware tradition, partly as a result of a radiocarbon date of 1740 bc ±115 (BM 450; Cleal 1982).[11] A little nearer to Mucking, Hunstanton, in Norfolk, has produced a comparable assemblage and a date of 1763 bc ±53 (BM-704; Kinnes pers. comm.).[12]

The point can be further demonstrated stratigraphically at Woodhenge. This site, post-dating Durrington Walls, has been used to suggest an increase in the elaboration of decoration (Richards & Thomas 1984, 195) on the basis of radiocarbon dates from the ditch of 1867 bc ±74 (BM-677) and 1805 bc ±54 (BM-678; Wainwright 1979).[13] However, some 60% of the pottery published by Cunnington (1929, 120–45) comes from features and the old land surface sealed beneath the bank, and includes the more elaborately decorated vessels. The pottery from the ditch and postholes is much less elaborate. The elaborately decorated pottery could thus be contemporary with the Durrington Walls assemblage.

At Mucking, the late dating of the Grooved Ware can be inferred from the avoidance by the Beaker pottery of the main concentration of the Grooved Ware finds. Gibson's assessment of the Beaker (see below) suggests most of this material is appropriate to Step 4 of Lanting and van der Waal's scheme (1972; 1850–1700 bc) which matches the range suggested by the dated Grooved Ware sites considered above. This implication of contemporaneity between the two traditions also implies that the Grooved Ware and Beaker were not made by the same community. Alternatively, if the Grooved Ware and Beaker were not made by the same community, then a Beaker-using community must have occupied the gravel terrace very shortly after it had ceased to be used for whatever activity was associated with Grooved Ware, but still respected the focus for that activity. A former supervisor on the site, Ian Kinnes, suggested the Grooved Ware area may have been on the highest part of the site, but in the absence of any detailed recording of topography (no absolute level readings were taken on any point of the site) we have no proof of this.[14] Even so, the lack of any traces of a large-scale structure would suggest that the reason for a focus for a particular type of activity at this point lay with some notable natural feature.

The final element we might consider is the Grooved Ware fabrics which, unusually, are generally well-made and of comparable fineness to the Beaker fabrics. This is particularly the case for the finger-impressed sherds, which, but for their association with more obvious Grooved Ware, might easily be consigned to the Beaker 'rusticated' assemblage. Although a wide range of tempering material was added, including shell (e.g. GW6) and burnt flint, grog, however, was always used, which is not the case for the Beaker, some of which, notably the finger-rusticated wares, have no grog.

GW1 Forty-four sherds, including four rims and one base, of a straight-sided vessel of fairly hard fabric, predominantly grog-tempered with sparse flint; surfaces soapy, pink orange, core grey. Decoration: applied vertical cordons, some with transverse fingernail impressions; on the rim, diagonal fingernail impressions. Two sherds carry perforations made after firing from the outside (1385N × 659E; Figs. 2.21.1–7).

GW2 [Not drawn or described]

GW3 Twelve sherds, including two base sherds of bowl, diameter 13cm, of soft crumbly fabric tempered with grog and some large flint; exterior buff-orange, interior grey, core grey. Decoration: vertical plain cordons, closely spaced (1416'6N × 596E; Fig. 2.21.8).

GW4 Eleven sherds, including rim and base angle of a bowl, rim diameter 18cm, base diameter 12cm, approximate height 11cm, of fairly hard fabric, tempered with grog and occasional calcined flint. Exterior surface smooth, wiped both vertically and horizontally; exterior surface brown to dark grey, interior orange to dark grey, core black. Decoration: two to three horizontal lines of twisted cord below the rim, later wiped over; below, groups of light fingernail impressions set horizontally (1416'6N × 596E; Fig. 2.21.9).

GW5 [No description provided] (1417N × 591E; Fig. 2.21.10).

GW6 Fourteen sherds, including rim from bowl of fairly hard fabric tempered with grog and some flint and shell; exterior surface smooth, dark grey, interior brown, core dark grey. Decoration: three horizontal lines of quite thick, but lightly impressed twisted cord (1417N × 591E; Fig. 2.21.11).

GW7 Fourteen sherds, including rim, of bowl; rim diameter 15cm, of friable and sandy fabric, tempered with grog and some flint; exterior surface red-brown, interior black, core black. Decoration: four-five horizontal lines of twisted cored impressions (1417N × 591E; Fig. 2.21.12).

GW8 Seven sherds of hard sandy fabric tempered with sand, flint and some grog; exterior surface red-brown, interior dark grey-brown and core dark grey-brown. Decoration: random fingernail impressions (1418N × 598E; Fig. 2.21.13).

GW9 Sherd of hard fabric tempered with grog and occasional flint; exterior surface smooth, red brown, interior dark brown, core grey. Decoration: groups of incised lines (1426N × 675E; Fig. 2.21.14).

GW10 Body sherd (1426N × 675E; Fig. 2.21.15).

GW11 Body sherd of hard smooth fabric with grog and sparse flint temper; exterior and interior surfaces red-brown, core grey. Decoration: finger-pinching (1426N × 675E; Fig. 2.21.16).

GW12 Base angle (1426N × 675E; Fig. 2.21.17).

GW13 Five sherds, including base, diameter 8cm of hard fabric, tempered with grog and a little sand; exterior surface smooth, interior and core brown to brown-grey. Undecorated (1432N × 624E; Fig. 2.21.18).

GW14 Fifty-three sherds of bucket-shaped vessel, rim diameter 18cm; max. surviving height *c.* 11cm of fairly hard fabric, tempered with grog and sparse flint grits (up to 3mm); surfaces soapy, exterior pink to red-brown, interior and core grey to black. Decoration: rim diagonal incisions, body horizontal or perhaps spiral incised lines, crossed occasionally by diagonal incised line (1442N × 547E; Fig. 2.21.19).

GW14a Two joining rim sherds. Plain/undecorated (1442N × 547E; not illustrated).

GW15 Body sherd. Fabric fairly hard with grog and organic temper (now dissolved or burnt out); surfaces soapy, exterior dark buff, interior and core dark grey. Decoration: applied vertical cordon; opposed incised lines carry over on to cordon (1442N × 547E; Fig. 2.21.20).

GW16 Fourteen sherds of vessel of soft fabric tempered with grog and sparse flint; surfaces soapy; dark buff to grey throughout. Decoration: applied vertical cordons (1442N × 547E; Fig. 2.21.21).

GW17 Rim sherd, internally bevelled, diameter 12cm of fairly hard fabric with grog temper; surfaces smooth, exterior light brown, interior and core dark grey. Decoration: on internal bevel, two horizontal twisted cord lines; externally three horizontal and one vertical twisted cord lines (1442N × 547E; Fig. 2.22.23).

GW18 Base angle, diameter 8cm, fabric soft and crumbly, tempered with grog and a little flint. Exterior surface and core deep orange buff, interior surface eroded away (1442N × 547E; Fig. 2.21.22).

GW19 Three sherds, including abraded rim sherd from a bowl of hard fabric tempered with grog and some sand; surfaces smooth, deep ink throughout. Traces of horizontal decoration beneath rim (1442N × 547E; Fig. 2.22.24).

GW20 Rim sherd of friable, slightly sandy fabric, tempered with grog, sand and perhaps shell or vegetable temper. Decoration: on the rim deep transverse incisions; externally horizontal above diagonal twisted cord lines (1442N × 547E; Fig. 2.22.25).

GW21 Rim sherd in friable sandy fabric, tempered with grog and sand with sparse flint grits; dark brown to grey throughout. Decoration: fingernail impressions (1442N × 547E; Fig. 2.22.26).

GW22 Two body sherds in fairly hard, smooth fabric, grog-tempered; exterior surface deep pink, interior and core black to dark grey. Decoration: fingernail impressions (1442N × 547E; Fig. 2.22.27).

GW23 Three rim sherds (two joining) in soft smooth fabric tempered with grog and some sand and flint; dark brown to dark grey throughout. Plain (1442N × 547E; Fig. 2.22.28).

GW24 Two joining rim sherds from bowl, diameter *c.* 12cm. Fabric soft and crumbly, tempered with grog and some sand; exterior and interior surface dark brown, core black. Plain (1442N × 547E; Fig. 2.22.29).

GW25 Five sherds, including two joining rims from bowl, diameter *c.* 15cm of friable soft fabric; tempered with grog and some shell or vegetable temper; exterior surface brown, interior and core black. Decoration: on rim lightly incised transverse lines; externally random fingernail impressions (1442N × 547E; Fig. 2.22.30).

GW26 Base angle of bowl with base diameter of *c.* 5.5cm in a grog-tempered fabric with some vegetable matter and occasional flint; surfaces smooth, exterior light brown, interior and core grey. Plain (1442N × 547E; Fig. 2.22.31).

GW27 Four joining body sherds from a straight-sided vessel. Fabric soft and tempered with crushed calcined flint and grog in roughly equal proportions; surfaces smooth, exterior dark buff orange, interior and core black. Decoration: slight plain vertical cordons; one diagonal incised line (1442N × 547E; Fig. 2.22.32).

GW28 Two joining rounded rim sherds of fairly hard, grog-tempered fabric; surfaces soapy, exterior dark brown, interior dark buff to light brown, core grey. Plain? (1442N × 547E; not illustrated)

GW29 Six sherds, including rim from a bowl, diameter 18cm, of hard vesicular fabric, tempered with grog and shell in roughly equal proportions; surfaces soapy, exterior and interior medium to dark brown, core grey. Decoration: groups of diagonal lines, lightly incised; some opposed (1481N × 612E; Figs. 2.22.33–5).

GW30 Body sherd of hard fabric, grog-tempered; surfaces smooth, exterior dark red, interior brown, core dark grey. Decoration: horizontal grooved lines (1481N × 612E; not illustrated).

GW31 Two sherds, including rim of hard fabric, tempered with grog; surfaces smooth, exterior medium to light brown, interior and core black. Plain (1481N × 612E; not illustrated).

GW32 Five small sherds and other fragments of bowl of compact, hard fabric tempered with grog; surfaces smooth, exterior brown, interior and core dark brown-grey. Decoration: internally horizontal and diagonal incised lines; externally one horizontal twisted cord (1481N × 612E; not illustrated).

GW33 Six sherds, including base angle of straight-sided vessel of soft, crumbly fabric tempered with grog and calcined flint; exterior surface orange, interior and core black. Decoration: applied vertical cordons and light horizontal fingernail impressions (1521N × 558E; Fig. 2.22.36).

GW34 Base angle of soft, friable fabric, tempered with grog; exterior surface medium to light brown, interior and core black. Plain (1521N × 558E; Fig. 2.22.37).

GW35 Nine rim and body sherds of very soft and crumbly fabric, tempered with grog and occasional flint; exterior surface dark orange, interior and core grey to black. Plain (1521N × 558E; Fig. 2.22.38).

GW36 Seven body sherds (two joining) in soft fabric tempered with grog; surfaces smooth, orange throughout. Decoration: horizontally placed fingernail impressions (1521N × 558E; Fig. 2.22.39).

GW37 Six sherds of base angle (two joining) from vessel with diameter of *c.* 14cm of soft, crumbly fabric, tempered with grog and some flint; exterior surface dark orange, interior and core grey to black. Decoration: applied plain vertical cordon (1532N × 556E; Fig. 2.22.40).

GW38 Fourteen sherds from base angle and lower body of vessel, diameter at base 10cm of soft fabric tempered with grog: surfaces soapy, exterior red brown, interior and core grey. Decoration: random finger-pinching (1532N × 556E; Fig. 2.22.42).

GW39 Base sherd, very abraded of soft, crumbly fabric with grog temper; exterior surface deep pink, interior eroded, core grey (1532N × 556E; Fig. 2.22.41).

GW40 Conjoining lower body sherds of fairly hard fabric, grog-tempered; surfaces smooth, exterior dark red brown, interior and core dark grey. Decoration: diagonally placed finger-pinching (1532N × 556E; Fig. 2.22.45).

GW41 Four body sherds of soft fabric, tempered with grog and some flint, surfaces smooth, exterior and interior red-brown, core grey. Decoration: applied vertical cordon now decayed (1545N × 553E; not illustrated).

GW42 Body sherd of soft fabric, tempered with grog and a little sand; surfaces smooth, dark pink throughout. Decoration: applied vertical cordon (1545N × 553E; not illustrated).

GW43 Wall sherd of fairly hard fabric, tempered with grog and some flint grit and sand pebbles; surfaces smooth, exterior light red-brown, interior black. Decoration: slight plain vertical cordon and short diagonal incisions (1534N × 550E; Fig. 2.22.44).

GW44 Six joining wall sherds of fairly hard fabric, tempered with grog and occasional flint; surfaces smooth, exterior red (abraded), interior black. Decoration: random fingernail impressions (1534N × 550E; Fig. 2.22.43).

GW45 Wall sherd of fairly hard fabric, tempered with grog and occasional flint; surfaces smooth, exterior buff, interior black. Decoration: plain vertical cordon (1534N × 550E; Fig. 2.22.47).

GW46 Wall sherd of fairly hard fabric, grog-tempered; exterior buff, interior grey. Decoration: vertical cordon (1534N × 550E; not illustrated).

GW47 Base angle of hard fabric, tempered with grog; surfaces smooth, exterior brown, interior black. Plain (1534N × 550E; not illustrated).

GW48 Four joining rim sherds of hard, sandy fabric, tempered with sand and a little grog; exterior surface brown, interior black. Plain (1534N × 550E; Fig. 2.22.46).

GW49 Base angle of fairly hard fabric, tempered with grog, a little mica and flint; exterior surface pink, interior grey. Decoration: diagonal impressions (1534N × 550E; Fig. 2.22.48).

GW50 Two joining wall sherds in soft crumbly fabric with grog temper; exterior light red-brown-pink, interior black. Decoration: vertical cordon (1534N × 550E; not illustrated).

GW51 Wall sherd of slightly sandy fabric, tempered with grog, sand and quartz; exterior surface light red-brown, interior black. Decoration: faint horizontal and diagonal scoring (1534N × 550E; not illustrated).

GW52 Decorated rim sherd (2453N × 980E; Fig. 2.22.49).

GW53 Decorated body sherd (2449N × 982E; Fig. 2.22.50).

GW54 Decorated body sherd (not illustrated).

GW55 Body sherd of fairly hard fabric, tempered predominantly with flint and a little grog; surfaces smooth, buff throughout. Decoration: applied horizontal and vertical cordons, short diagonal impressions (2057N × 652E; Fig. 2.22.51).

Mucking's Grooved Ware Revisited Mark Knight

The current understanding of Grooved Ware chronology suggests a start date of *c*. 2900 cal. BC and an end date of *c*. 2100 cal. BC (Garwood 1999). Within this time bracket it is thought that the two principal sub-styles broadly overlapped, but that there was a probable temporal off-set with the Clacton sub-style starting slightly before that of Durrington Walls (*ibid*.). Grooved Ware pottery has been found throughout the British Isles, although lowland England has the highest concentration of sites (Longworth & Cleal 1999). The eastern distribution of the lowland region is dominated by pit sites and within this distribution it is rare for the different sub-styles to occur in close contextual proximity; sites tend to be either Clacton or Durrington Walls, but very rarely both.

By eastern England standards, the Mucking Grooved Ware pottery assemblage of 283 sherds represents a medium-sized collection. Sites such as Lion Point, Clacton (Longworth 1971a) and Spong Hill, Norfolk (Healy 1988) produced similar-sized assemblages (324 and 210 sherds respectively) whereas the recently excavated Edgerley Drain Road site at Fengate, Peterborough generated 1066 sherds (Knight 2009).

Contrary to Birley's interpretation, I would suggest that the illustrated pieces of the Mucking Grooved Ware assemblage do 'fall readily' into one of Longworth's sub-styles (Longworth 1971b) and that all of the decorative techniques can be easily accommodated within the Durrington Walls category (including pieces with fingernail/fingertip decoration). Most of all, with grog being the principal inclusion, and shell all but absent, there is no reason to suggest that any of the pieces belong to the Clacton category. If anything, for both East Anglia and the Thames Valley, there appears to be a straightforward correspondence between sub-style and fabric: Durrington Walls being grog-tempered and Clacton, shell-tempered (Barclay 1999; Knight 2009).

In the absence of radiocarbon dates, Birley tried his best to 'date' the Mucking material *via* its spatial relationship to the site's Beaker pottery. For him, the distribution of Beaker sherds demonstrated a deliberate 'avoidance' of the Grooved Ware focus and therefore, his argument went, the two sets of ceramics must have been temporally adjacent. Furthermore, because Gibson's assessment of the Beaker pottery suggested that it was typo-chronologically late, by association the Grooved Ware assemblage had to be late as well. Birley stretched the Grooved Ware/Beaker connection even further by comparing fabrics and the co-presence of grog, as well as the aforementioned fingernail/fingertip rustication found on both sets of ceramics; though, to be fair, he highlighted the differences as much as the similarities.

Since the Mucking excavations, radiocarbon dating has been used to demonstrate a chronological overlap between Grooved Ware and Beaker of about 400 years (Garwood 1999). Contextually however, the two pottery types remain distinct and wherever

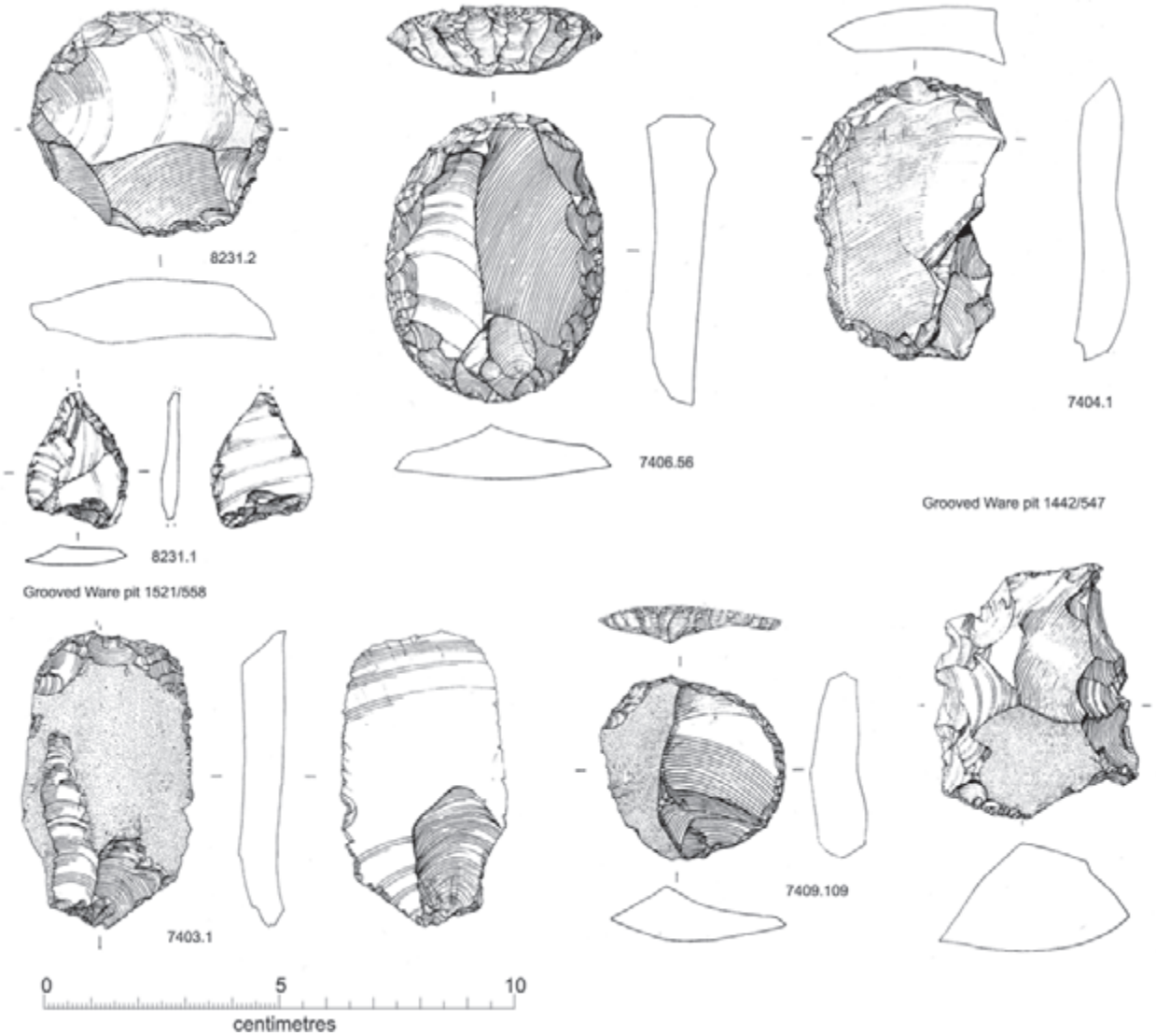


Figure 2.23. Flintwork from Grooved Ware pits.

the two have been found in vertical succession the relationship has always shown Beaker post-dating Grooved Ware (Richards & Thomas 1984; Pollard 1992; Kinnes 1998).

Worked Flint Elizabeth Healey

Of the features with Grooved Ware pottery, 14 also had lithics (Fig. 2.23). As can be seen from Table 2.5, quantities of artefacts present were generally small and inconsistent, varying from two to almost 100. Looking at this more closely, it is also apparent that the pits had rather different contents. Cores were present only in the three pits that also had more debitage, perhaps indicating that they represent discard from knapping episodes and, indeed, there are refits in pit 1442N × 547E. Many of the flakes are of similar flint and suggest that further refits may be possible (although circumstances did not permit more than the most obvious). Scrapers are the predominant retouched form present and arrowheads occurred in three of the Grooved Ware pits. Two are transverse (8231; the other NI), both of Green's oblique type (Green 1984), but one from pit 1432N × 624E is a fragment of a large, bifacially flaked leaf-shaped arrowhead of a type more usually associated with earlier Neolithic activity and is, therefore, likely to be residual. Likewise, the small flake from pit 1442N × 547E, from a ground and polished object, could be residual, but the possibility that this was from a polished knife rather than an axe, and therefore contemporary with the Grooved Ware, should not be ruled out. Other retouched forms from that pit include two denticulates and three flakes with edge-retouch. The presence of 12, and possibly 13, scrapers in this pit requires further discussion. The scrapers are on substantial flakes, ranging between 40 and 64mm in length. Three are heavily worn

*Table 2.5. Flintwork from Grooved Ware features (*flake from ground and polishing object; **knife).*

Co-ordinate	Cores	Struck nodules	Flakes	Indet	Arrowheads	Scrapers	Denticulates	Hammerstones	Other	Total
1384 × 657					1					1
1385 × 659			2			1	1			4
1416 × 596			4							4
1417 × 591			3	1	1					5
1418 × 598	2	1	15	3		1				22
1428 × 665			1							1
1432 × 624			5			1				6
1442 × 547*	9	1	66			12 + 2?	1	1	1	93
1481 × 612	1		10			2				13
1521 × 558**			3		1	1			1	6
1532 × 556			1			1				2
1534 × 550			28	3		3				34
1545 × 553			2							2
2057 × 652			3							3
TOTAL	12	2	143	7	3	24	2	1	2	196

around part of the edge (e.g. 7404.1); four have retouch on the distal end only. One has very abrupt retouch, partly undercut, on its distal end, while two others are less substantial, smaller flakes (but still over 40mm in length). On four of the scrapers the retouch continues along one side; two of these are on squat flakes (7409.109) and the other two, 7404.1 and 7403.1, are more elongated. There are also two sub-discoidal scrapers, like 7406.56, which are both very regularly flaked. Additionally, there are two retouched fragments, probably of scrapers. Apart from the more classically retouched scraper, there is also a large primary flake of similar dimensions to the other scrapers that has been retouched all round the edges, which are also heavily worn.

The only other pit with a similar proportion of scrapers is 1343N × 550E. They appear to be end and side scrapers but, in contrast to those in pit 1442N × 547E, are all fragmentary. The single scraper from pit 1521N × 558E (8231.2) is complete and similar to 7409.109.

Beaker

Mucking's Beaker-phase archaeology was brought to notice with the recovery of a spectacular inhumation, Grave 137, which featured in the Bruce-Mitford volume summary (Jones & Jones 1975). Citing Clarke's statement that East Anglia's Beaker population were 'simple peasant agriculturalists, seamen and traders' arriving from the Rhine Delta and Drenthe Peninsula, Margaret Jones saw them as prefiguring the area's Anglo-Saxons:

> This first clear statement of the role of Mucking as a landfall within the North Sea littoral is echoed almost exactly two and a half millennia later by Saxon immigrants (*ibid.*, 138).

As opposed to the essentially single focus of the site's Grooved Ware, there were four distinct Beaker 'clusters' (Fig. 2.19):

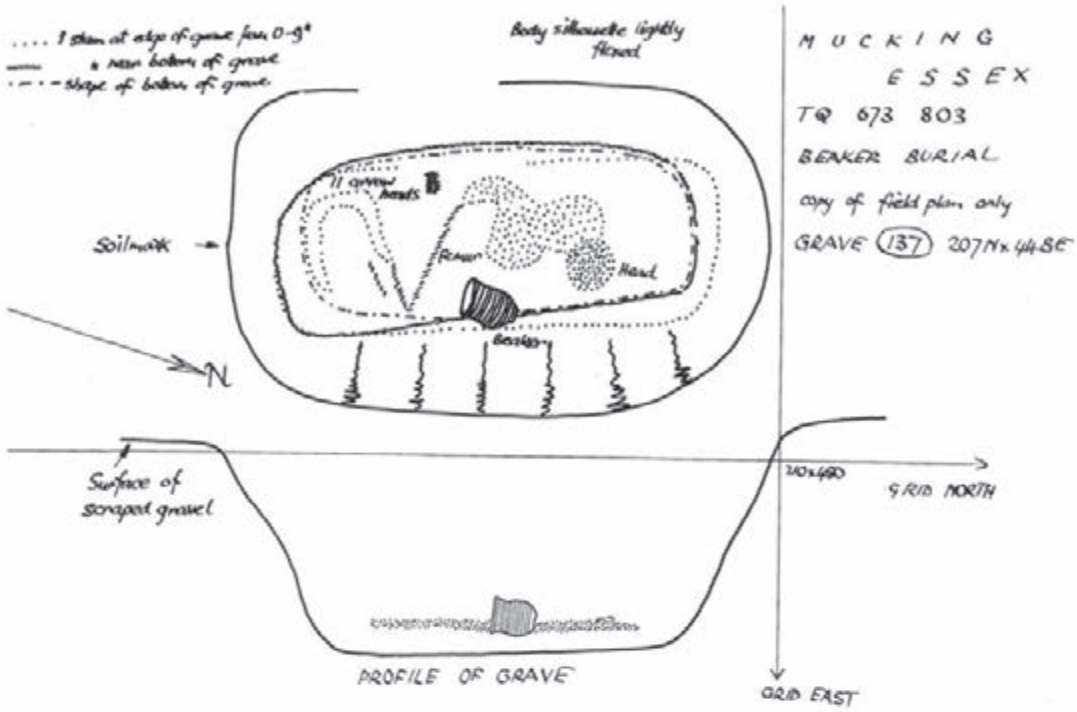
E) 6060sqm
F) 8925sqm
G) 8045sqm
H) 3480sqm.

Of these, it is the northernmost, 'H', within the area of the North Enclosure that is the most marked in terms of the density of its pottery, with the southern three being as much distinguished by their distance from each other than their internal values as such. It is, however, notable that Clusters E and G respectively coincided with the locations of Graves 137 and 786; Cluster F, corresponds with the general flint scatter-swathe within the area of Anglo-Saxon Cemetery II and Scatter Zone IV (see Fig. 2.19).

Graves

Grave 137 was one of a group of four pits excavated between two Romano-British ditches (Fig. 2.19). Whilst the other pits were bottomed without significant finds being encountered, that at 210N × 447E was found to contain a Beaker burial.

The grave pit was oval in shape, becoming more rectangular towards the bottom (Fig. 2.24). Measuring 1.92 × 1.2m, it was filled with yellowish orange sandy gravel. This had been extensively



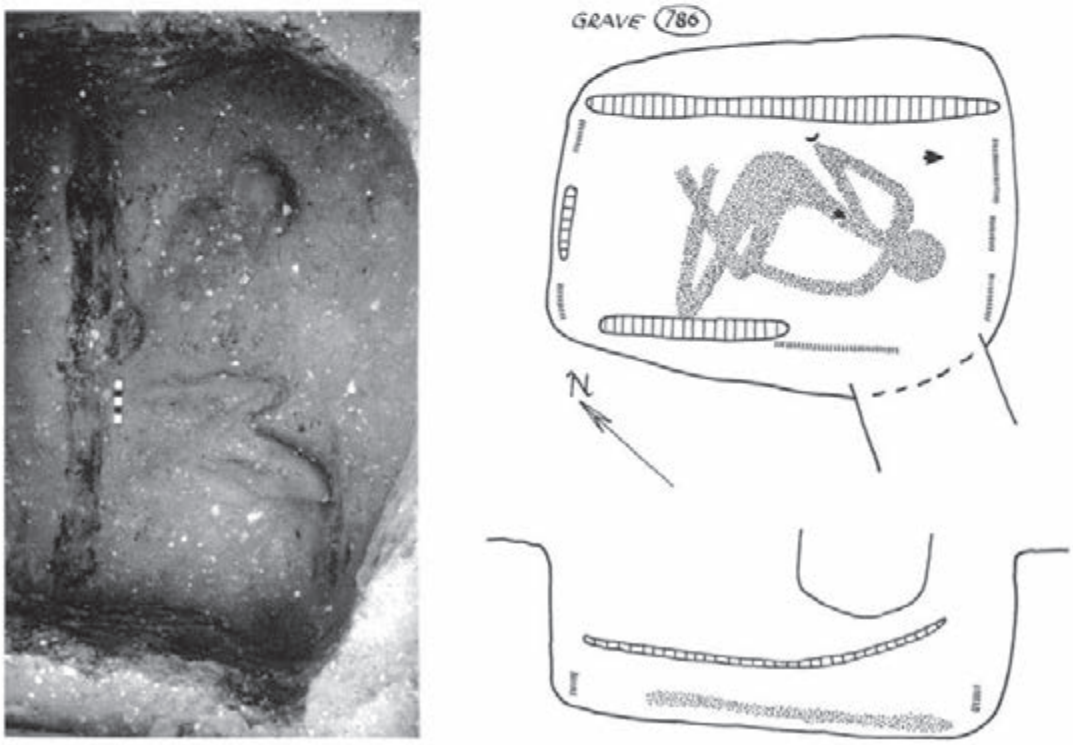


Figure 2.24. Beaker graves: top, Grave 137 and, below, Grave 786.

penetrated by roots and disturbed by worm action. It was noted to be different to the other pits associated with it, in that the fill contained charcoal. At a depth of *c.* 0.75m, a Beaker was discovered, lying on its side in the middle of the grave. Below this, a darker soil stain appeared. The outline of a coffin, this was *c.* 1.4m long by 0.62m wide, and sub-rectangular. No details of its construction were recorded during

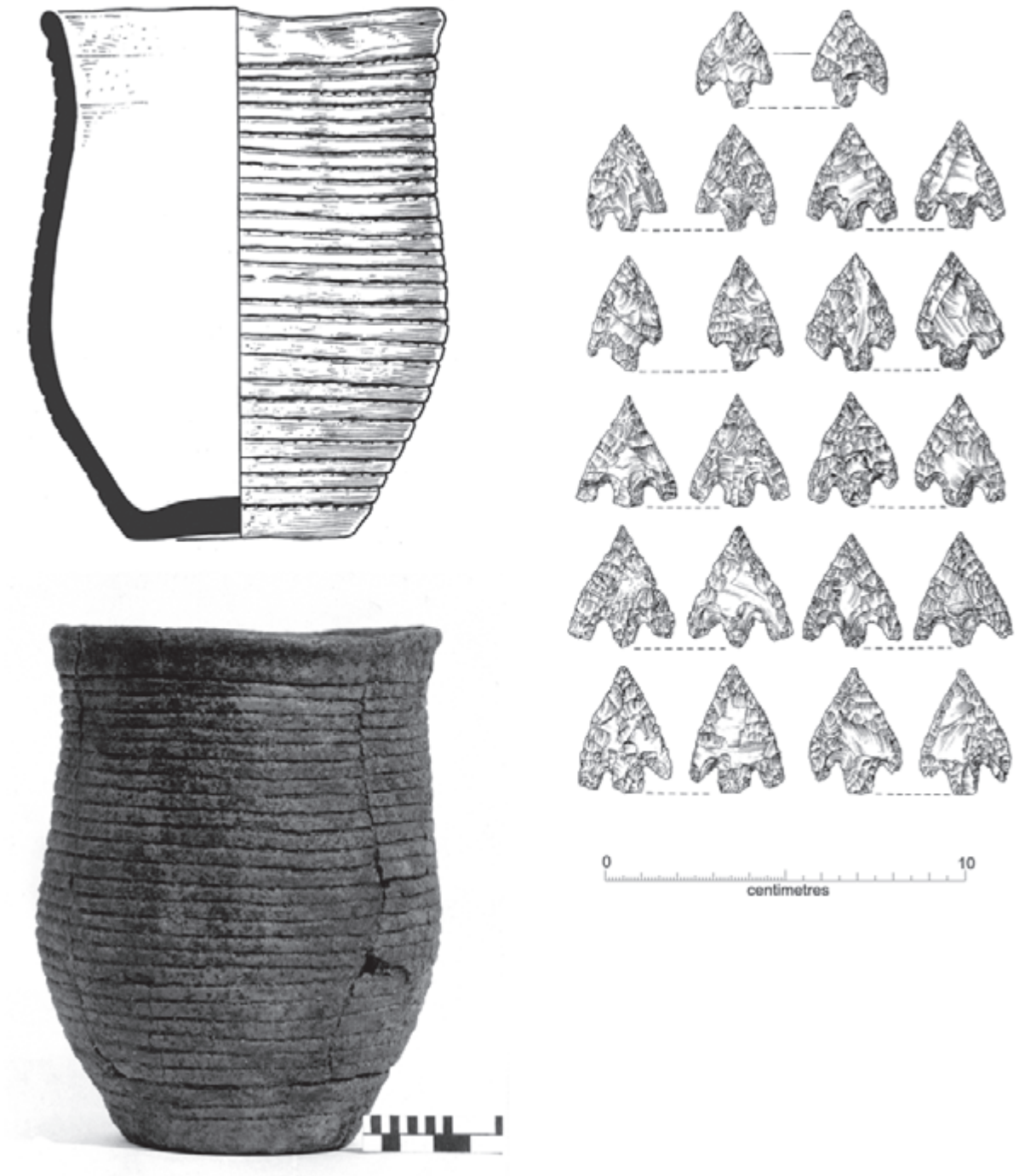


Figure 2.25. Beaker Grave 137: right, accompanying barbed and tanged arrowheads; left, the complete Beaker.

excavation, but, given the rounded shape of its ends, it may have been a hollowed-out tree trunk rather than plank-built.

Within the coffin was the somewhat unclear outline of a body. The most readily visible portions were the head (to the north) and the femur; other parts were less clear, but were nonetheless sufficient to establish that the body had originally been placed with its legs flexed and lying on its left side.

Behind the body, five arrowheads lay pointing towards the feet of the corpse; four lying in an overlapping row, covering the fifth. A further six arrowheads were retrieved from the grave fill, bringing the total number to 11. The arrowheads were all knapped from honey-coloured flint. Stress cracks, produced during primary flaking, led the excavator to suggest that they had been produced especially for the burial. A flint blade was also retrieved from the grave fill.

The accompanying *c.* 18cm high Beaker, with all-

over comb decoration (Fig. 2.25), was reported upon by Isobel Smith:

> This beaker, with simple all-over comb decoration, does not conform closely with any of the groups defined by Clarke (1970). The overall proportions are reminiscent of the European Bell Beaker form, but the slightly rolled rim, the relative width of the belly and the thick walls suggest that the vessel may be placed more appropriately in the East Anglian Group (*ibid.*, 146). This group is believed to represent a local development, based on a fusion between a European Bell Beaker group already established in the region and the incoming Barbed Wire Beaker group (*ibid.*, 151). From the evidence from a conventional radiocarbon date (1800 bc ± 150, BM-172; *Radiocarbon* 10, 1968) for a Barbed Wire Beaker assemblage at Lion Point (Jaywick), Clacton, Essex (*ibid.*, 140), it may be inferred that the Mucking Beaker is likely to have been made within the period 1900-1600 BC.[15]

Grave 786 was first observed as a pit cut by an early Romano-British kiln at 1151N × 192E (Fig. 2.19). This was filled with a loose pebbly loam with bands of whitish silt. At *c.* 0.25m depth, a band of grey silt and a 'charcoal' smear (actually humified wood) were encountered (Fig. 2.24). This subsequently turned out to be the top of a plank coffin.

The construction of the coffin could be determined from the humified wood remains (identified as oak). At the top of the coffin, an almost complete plank survived with a length of 1.37m, 0.25m wide and 3cm thick. The remainder of the coffin was observed as a soil stain of distorted rectangular shape. The sides had been pushed in so that they lay at an angle of 45° and, in places, had been pushed to one side, creating patches of what was originally assumed to be charcoal, but was shown also to be humified wood. The bottom of the coffin lay at a depth of *c.* 0.5m, with the top 10–15cm above.

The bottom of the grave was at *c.* 0.7m. At this depth, the grave had a sub-rectangular shape. It was only just longer than the coffin, but somewhat wider and was oriented northeast–southwest.

No human remains were retrieved from Grave 786, but a body silhouette could be distinguished within the coffin. This indicated that the individual had been placed on its left side, with the head at the northeastern end and the legs flexed. It was suggested by the excavator that the body had originally been wrapped in some kind of organic material before being placed centrally within the coffin. An arrowhead lay beside the head, although its original orientation could not be determined as it was caught by a trowel and moved. A second was found on top of the body, pointing towards the head. At the elbow was an unusually shaped flint nodule, thought to be reminiscent of a bow and a deliberately placed object.

A radiocarbon date was obtained from the plank coffin. This gave a date of 2195–1695 cal. BC (HAR-450), making Grave 786 roughly contemporary with Grave 137.

Of the worked flint within these features, Elizabeth Healey notes:

> Particularly interesting are the 11 barbed and tanged arrowheads from Grave 137. They are of a reasonably uniform size and are quite small (26 to 33mm in length; Fig. 2.25). They weigh between 1.6 and 2.9g. All are bifacially flaked, though some have more of the original flake scar left than others. There is some variation in form – some tangs and barbs are more squared than others – but all appear to belong to Green's Sutton type (Green 1984). They are made of several different types of flint, one of which has a patinated patch and another has been burnt.
>
> The other grave, No. 786, (Fig. 2.24) had two arrowheads (Fig. 2.13), with a small crescent-shaped pebble occurring at the elbow. The arrowheads are of different shapes. That found on the chest is small (22 × 21 × 3.5mm) and of light grey matt flint. It is made on the side of a flake and shaped with bifacial flaking around the edges and abrupt nibbling retouch on the point. The other (33 × 22 × 5mm) is made on a flake of grey flint, with a marked inclusion causing unevenness in the thickness of the arrowhead; it is bifacially flaked apart from this area. The point has been carefully defined with abrupt semi-invasive retouch. The working around the inclusion is unusual as it would have been apparent as an obstacle when the blank was chosen and it may, therefore, have been a symbolic rather than functional artefact (see e.g. Devaney 2005).

Other Features

Gibson below highlights the material from two pit assemblages. The first, 1045N × -42E (12946; Cluster G; Figs. 2.19 & 4.53), had sherds from eight separate vessels, in addition to those from an Iron Age vessel; the latter being explained by the fact that this oblong pit was truncated by an Iron Age ditch (Enclosure 1100; see Chap. 4). The surviving half of the pit was 1.75m long and 0.4m deep. It had a dark brown 'blotchy' fill, from which flints were also recovered. A second, smaller pit, also containing Beaker pottery, lay just to the south, and was 0.45m across and 0.15m deep (12948; 1042N × -40E).

Having sherds from some nine Beakers, pit 752N × 730E (9178; Cluster F; Fig. 2.19) was rectangular in shape, with rounded corners, and was 2.18m long, 1.2m wide and excavated to a depth of 3.1m. Based on its plan, in the field it was thought that this might have been a grave whose inhumation had not survived. There seems no real evidence for this, but it was almost certainly over-cut, as a compact gravelly layer/fill was encountered 2.6m down. This feature, otherwise, had a brown loamy fill, with increasing large pebbles and patches of clean sand with depth. In addition to the Beaker

pottery and animal bone (including sheep- and small mammal-sized fragments), flint flakes and blades were recovered from its fills.

A further 15 pits were identified as having Beaker pottery and possibly being of that date. These were 0.46–4.5m across and varied in depth from 0.13m to 0.53m. With no other structural remains associated, these potential Beaker features were generally evenly dispersed between the four identified Beaker distribution spreads; in other words, they would not in themselves attest to any significant occupation 'clustering'.

Pottery Alex Gibson

At the invitation of M. Jones, the pottery from Mucking was examined by the writer during a single day in 1981 (the consultancy fee – a fish and chip lunch). It has not been seen since. The current distributional analysis indicates that four discrete clusters of activity were involved and that the assemblage should, therefore, not be treated as a single event. The 1981 viewing of the material was not ideal. Whilst some material had been laid out (mainly the rusticated sherds) in the dull and cramped chaos of the post-excavation offices, other pieces were produced (and taken away again) at intervals. On-the-spot identifications were expected of some very small and abraded sherd material: a methodology that cannot fail to promote errors. As a result, the whole assemblage was not seen as a coherent body and mistakes in the identification of some pottery traditions may well be present. This may also have been why some descriptions are incomplete, in that the sherd had been taken away before the writer had the chance to properly examine it and complete his description. Less understandable is the descriptive references to curved sherds that are here illustrated as flat and the apparent failure in the catalogue to notice a substantial base sherd. This must bring into question the matching of some sherds to some descriptions. The sherds were not drawn by the writer but, instead, the drawings have been added subsequently to the writer's descriptions. The following summary and catalogue was written in 1981 immediately following the writer's visit. There has been no opportunity to revisit or reconsider the material in the light of subsequent research. What follows, therefore is an inadequate overview with only cosmetic editing.

The domestic Beaker from Mucking is typical of the nature of such finds from multi-period settlement sites and in particular compares favourably with the pottery assemblage from Fengate (Pryor 1978 & 1980a). The chief characteristic of the Mucking assemblage is the small size of the pottery and the fact that the sherds are quite evenly distributed between abraded and fresh. Their contexts over the site – with the exception of two pit assemblages – suggest that they are residual and the remnants of an earlier phase of settlement that has left little trace. In all, about 14 Beakers are represented by the sherd evidence, and some 45 associated vessels are undecorated or else decorated in a variety of rusticated techniques. Some of these vessels must have been of a considerable size. These rusticated pots by no means represent the total of such sherds among the material from Mucking, but do seem to be the only ones firmly attributable to Beaker-associated rusticated ware; others clearly belong to the Grooved Ware assemblage or to later periods of occupation. This distinction, however, is often intuitive. Fabric cannot be relied upon to any great extent as we do not know, for example, how many potters were at work, the duration of the Beaker presence, or the number of clay resources exploited.

B1 Combed Beaker sherd in a fine fabric, coloured medium brown throughout with a fully oxidised core. Rectangular toothed comb used for the horizontal decoration is somewhat irregular in the spacing of the teeth. Vertical decoration consists of elongated oval impressions, possibly fingernail. The single motif visible is Clarke's motif No. 5 (Clarke 1970; 620'6N × 584E/Pit; Fig. 2.26.1).

B2 Small sherd of combed Beaker with overlaps of the comb clearly visible. The comb used has had medium-sized rectangular teeth. The fabric had crushed calcined flint as an opening agent, is coloured red on the exterior, dark brown on the inside, and has a black core. The decoration consists of only three horizontal comb lines (2356N × 885E/Pit; Fig. 2.26.2).

B3 Small thin sherd of possible Beaker. The fabric is black throughout and contains small finely crushed fragments of calcined flint. The decoration consists of two widely spaced horizontal lines of comb impressions and two other lines at 90°. The comb employed has finely spaced, sharp, circular teeth. The blackness and texture of the fabric is unusual for British Beaker (80N × 205E/South Outer Rings late fill; Fig. 2.26.3).

B4 Small sherd of combed Beaker in a fine and well-fired fabric which is brown throughout and contains finely crushed pieces of grog and calcined flint. The curvature of the sherd suggests a belly sherd from a comb-zoned vessel. The comb used has regularly spaced rectangular teeth and the decoration exhibited consists of one horizontal combed line, an undecorated band, three horizontal lines, and a double line of comb converging with two more. The motif represented may be Clarke's No. 7 (2356N × 878E/Pit; NI).

B5 Small sherd of combed Beaker in a fine, burnished fabric that is coloured red throughout. The opening agent in the fabric would appear to be grog, but it is so finely crushed as to be scarcely discernible. The comb used had finely spaced small rectangular teeth and the decoration consists of four horizontal lines above four diagonal lines forming what would appear to be chevrons. This may also represent Clarke's Motif No. 7 (726N × 722E/Ditch; Fig. 2.26.4).

B6 Sherd of abraded combed Beaker. The fabric has light brown surfaces with a grey core and contains finely crushed calcined flint. The curvature of the sherd suggests a belly-sherd and the decoration consists of two horizontal lines, the remains of four single chevrons, and a further four horizontal lines, all executed in comb. Like the above sherd, Clarke's Motif No. 7 is represented (160N × 530E/Pit/well; Fig. 2.26.5).

Figure 2.26. Beaker pottery (I).

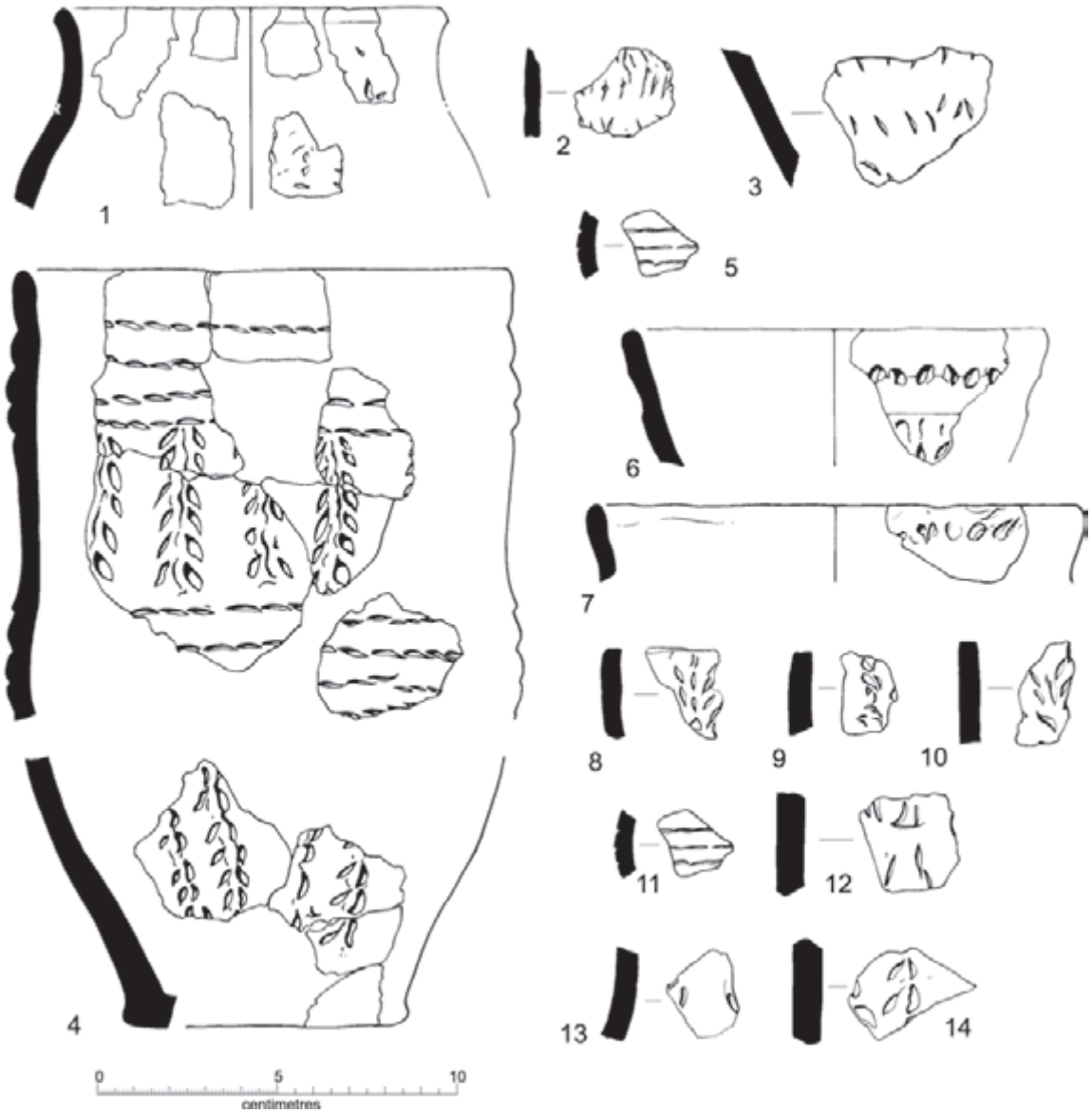


Figure 2.27. Beaker pottery (II).

B7 Small hard and thin sherd representing the base angle of a Beaker. The fabric is coloured red on the exterior, but the core is brown and the interior is dark brown. The fabric is filled with finely crushed grog and calcined flint. The decoration is combed, the comb having fine rectangular teeth, and the decoration consists of vertical herringbone which is a motif commonly used to fill the lower portions of such vessels (2269'6N × 744E/posthole; Fig. 2.26.6).

B8 Rim sherd from a combed Beaker. The rim is out-turned and the angle of the sherd suggests an ovoid Beaker typical of those found in East Anglia and adjoining areas. The fabric is fine and hard, with small pieces of calcined flint; it is coloured light brown throughout the thickness of the sherd. The decoration has been executed with a rectangular-toothed comb and consists purely of four horizontal lines. Overlaps of the comb are visible in two places and it is likely that the sherd is from an A0 combed vessel (275N × 396E/Pit; Fig. 2.26.7).

B9 Small belly sherd from a Beaker. The fabric is fine and hard, coloured brown and contains small finely crushed pieces of calcined flint. The decoration consists of traces of five lines of comb impressions which increase in their angle of slope towards the bottom of the sherd (79N × 279E/South Outer Rings; Fig. 2.26.8).

B10 Sherd very similar to the above and possibly from the same or very similar vessel. The sherd is very abraded but the decoration would seem to consist of converging lines (? herringbone) of round-toothed comb impressions (622'6N × 584'6E/Pit; Fig. 2.26.9).

B11 Large sherd with possible Beaker affinity in a fairly fine fabric containing some grog and some finely crushed calcined flint, and coloured red-brown on the exterior, and black inside and in the core of the fabric. The decoration consists of short lengths of combing arranged horizontally, but apparently otherwise haphazardly. The comb had regularly spaced rectangular teeth. The curvature of the sherd suggests a fairly upright profile, unlike the sinuous profile of a Beaker (2343N × 1049E/Natural hollow or pit; Fig. 2.26.10).

B12 Shouldered sherd from a vessel of unknown type. The decoration consists of a single line of near circular impressions that emphasise the shoulder (?1850N × 747E/Pit; NI).

B13 Small shouldered sherd in Beaker-like fabric, but perhaps representing a Food Vessel or pygmy cup. The fabric is fine and hard. The decoration consists of three diagonal lines of small circular impressions and two horizontal lines in the same technique (882N × 602E; NI).

B14 Sherd from a large rusticated vessel decorated with horizontal lines of circular-oval impressions irregularly spaced, but forming horizontal lines, four of which are visible. The fabric has a black exterior and a black core; the inner surface is grey. Despite the thickness of the sherd, the opening agent – calcined flint – has been finely crushed. The sherd had a slight curve and, again, a large vessel is represented (900N × 100E/scraping; Fig. 2.26.11).

B15 Small body sherd of possible Beaker or Early Bronze Age date. The fabric contains fine calcined flint and is coloured red on the outside with a grey core and interior. The decoration consists of two horizontal rows of circular stabs. Not enough survives of the sherd to give an insight into shape (633N × 671E; Fig. 2.26.13).

B16 Large belly sherd from a large coarse vessel with probable Beaker affinity. The fabric is reddish-brown throughout and contains coarsely crushed calcined flint. The decoration consists of whipped twisted cord in five fairly evenly spaced horizontal lines. Individual twists of cord, as well as traces of the whipping core are visible in places. The thickness of the fabric and the curvature of the sherd suggest a vessel of considerable size and bulk (1041N × –39E; Fig. 2.26.12).

B17 Small sherd with deep whipped impressions. The fabric is fine and hard, buff-brown throughout and contains finely crushed grog. The impressions appear to be loosely whipped gut or sinew, or some other such hard material, as there are no internal fibre impressions as might be left by cord/wool; the impressions are also deep, again suggesting a hard material. The decoration consists of two horizontal and one vertical line of this technique. The fineness of the vessel suggests Beaker affinity, but this is not certain (79N × 279E/South Rings; Fig. 2.26.14).

B18 Large wall sherd of well-fired fabric tempered with sparse finely crushed grog and calcined flint, brown throughout. Horizontal toothed comb-lines decoration (2356N × 878E; Fig. 2.26.15).

B19 Sherd from a fairly large rusticated vessel of Beaker affinity. The fabric is fine and hard with a brown exterior, a grey core, and a light brown interior. Grog is used as an opening agent; the coils are visible in the breaks. The decoration visible consists of nine horizontal rows of horizontal fingernail impressions arranged carefully and contiguously; it is probable that the entire vessel was thus decorated (2013N × 990E; Fig. 2.26.16).

B20 Lower body and base angle sherds decorated with both single and paired fingernail impressions, and of probable Beaker/Early Bronze Age date. The fabric is fine and coloured brown on the exterior, grey at the core, and black on the interior (1534N × 556E; Fig. 2.26.17).

B21 Thick body sherd from a large rusticated vessel decorated with fingernail impressions and fingertip impressions, which are deep enough to have raised crescents of dislodged clay. The fabric is black throughout and contains finely crushed calcined flint. The arrangement of the fingertip impressions and the shape of the vessel are not evidenced by the small size of the sherd (1856.6N × 936.6E; Fig. 2.26.18).

Some 17 rusticated vessels from this period are represented by sherds as follows:

Fingertip impressions
1817N × 857E (B22; Fig. 2.26.19)
1644N × 870E (B23; Fig. 2.26.20)

Paired deep fingernail
1795N × 846E (B24; Fig. 2.26.22)
1820N × 875E (B25; Fig. 2.26.23)
1339N × 626E (B26; Fig. 2.26.21)
1887N × 849E (B27; NI)

Paired light fingernail (random)
622N × 583'6E (B28; Fig. 2.26.24)
1850N × 810E (B29; Fig. 2.26.25)
663N × 849E (B30; NI).

Paired light fingernail (linear)
1869N × 872E (B31; NI)

Paired light fingernail (indeterminate)
1850N × 1810E (B32; NI)

Single fingernail
1778N × 774E (B33; NI)
1785N × 744E (B34; Fig. 2.26.26)
665N × 563E (B35; Fig. 2.26.27)

B36 Two sherds from the same vessel decorated with single (?randomly distributed) fingernail impressions. The fabric is light brown throughout and contains fine crushed calcined flint. The sherds are too small to hint at the vessel's profile (622'6N × 584'6E; Fig. 2.26.28).

B37 Sherd from a possible Beaker-type vessel decorated with single fingernail impressions between single horizontal incised lines (1854N × 811E; Fig. 2.26.29).

B38 Rim sherd in Beaker-like fabric. The rim is rounded and everted slightly, and the sherd seems to end just above a possible cordon, shoulder or collar. The fabric is light brown on both surfaces, with a grey core, and contains finely crushed calcined flint. The decoration consists of three rows (vertical) of triangular impressions, a technique alien to Beakers (1098N × 178E; Fig. 2.26.30)

B39 Small sherd in Beaker-like fabric decorated with four rows of triangular impressions which have their apices pointing down. The bases of the triangles are contiguous, giving the impression that a comb with triangular teeth has been used. In colour the fabric has a dark brown exterior, grey core, and a light brown interior; the fabric contains crushed calcined flint (1807N × 871E; Fig. 2.26.31).

B40 Undecorated rim sherd from a small vessel with fine Beaker-like fabric. The rim is rounded and has a concave internal bevel. The fabric is brown on the exterior, light brown on the inside and has a grey core; it also contains finely crushed grog (1385N × 659E; Fig. 2.26.32).

B41 Closed and cordoned rim sherd. The vessel is undecorated, though the surfaces are smoothed and burnished. The fabric is black throughout and contains fine calcined flint (1893N × 914E; Fig. 2.26.33).

Pit Assemblages

1045N × –42E

Vessel 1 (B42; Fig. 2.27.1) – Three sherds from the same vessel decorated sparsely with fingernail impressions arranged in an apparently random fashion. The vessel has a rounded rim – somewhat sharply rounded on the inside – which is also slightly everted, suggesting a slight concavity to the neck. The fabric is fine and hard with a pink-brown exterior, a grey-brown interior and a grey core. The fabric contains calcined flint and, in the section of the rim sherd, evidence of the coiling can be clearly seen.

Vessel 2 (B43; Fig. 2.27.2) – Body sherd of probable Beaker affinity. The sherd is curiously decorated with circular impressions often crossed by vertical fine fingernail impressions. One such row is visible, as well as randomly spaced fingernail impressions without the circular depressions. The fabric is very fine, containing crushed calcined flint, and in colour has a brown exterior, a grey interior and a black core. The curvature of the vessel suggests that the sherd is a belly sherd from a vessel with a bulbous profile in at least part of the total profile.

Vessel 3 (B44; Fig. 2.27.3) – A body sherd from a fairly large finger-rusticated vessel. The decoration consists of horizontal rows of paired fine fingernail impressions, two lines of which are visible on the sherd. The fabric is fine and contains calcined flint while the colour is pink-brown on the outside, grey inside and black in the core.

In addition, there are five other vessels represented by undecorated sherds in a fairly homogenous fabric. They all appear to be of the Beaker period and to represent a closed group. What were thought to be sherds from an Iron Age vessel, with an 'S'-shaped profile, were also recovered from this feature.

752N × 730E

Vessel 1 (B45; Fig. 2.27.4) – Large reconstructable finger-rusticated Pot Beaker. This vessel is typical of its class. The fabric is fine, contains both sand and some calcined flint, and is coloured pink throughout. The decoration on the neck portion consists of a combination of horizontal and vertical ribs, with fingernail impressions. These are combined in such a way that the horizontal ribs are formed by deep fingernail impressions forming considerably deep grooves. There are four such grooves at the top of the vessel, resulting in three ribs. The vertical ribs are formed by the displaced clay from vertical rows of paired fingernail impressions. These impressions are bordered at the base of the neck by at least two further ribs formed in the same way as those at the top of the vessel. The lower portion or belly of the vessel has contrasting decoration in the form of vertical rows of paired fingernail impressions, though there are no resulting ribs.

Vessel 2 (B46; Fig. 2.27.5) – Small cord-decorated sherd. The fabric is rather different from the other Beaker sherds from the site in that it is slightly gritty in texture and the fabric contains finely crushed calcined flint, some of which protrudes through the surface of the pot. This may be due to the abraded nature of the pottery. The colour of the fabric is dark brown on the outside, light brown on the inside, and it has a brown-grey core. The twisted cord impressions are very faint, and three lines are visible.

Vessel 3 (B47; Fig. 2.27.6) – Rim sherd from a rusticated vessel in a fine fabric, which is medium brown throughout and contains finely crushed calcined flint and grog. The rim is simple, rounded and slightly everted. The surface is decorated with two widely spaced horizontal rows of fine, paired fingernail impressions, between which is a shallow horizontal groove probably formed by the potter's thumb.

Vessel 4 (B48; Fig. 2.27.7) – Similar to the above, but smaller in proportions and light brown throughout; vessel forms probably identical.

In addition there are a further five(?) vessels represented by finger-rusticated sherds (Fig. 2.27.8–14). All are decorated with fingernail impressions and paired fingernail predominated. There are no unequivocal instances of single fingernail or fingertip. All are typical of Beaker associated finger-rusticated ware.

The Beakers themselves, as already stated, do not represent a large number of vessels and are the remains of small, and probably short-lived, occupations. Though no vessel is reconstructable, tell-tale traces as to date are the everted rim of the A0 combed vessel (B8), suggesting at least broad contracted zones of horizontal combed lines and an ovoid profile typical of a vessel no later than Step 3 of the scheme for East Anglia devised by Lanting and Van der Waals (1972). The whipped decoration would also be compatible with this step scheme. Some pots of this type also attain a considerable size (see Clarke 1970, fig. 356, 337, *etc.*). The zoned decoration present among the Beaker sherds suggest perhaps a slightly later step – say Step 4 – of Lanting and van der Waals's scheme in which the neck of the vessels becomes richer and more varied. We still find, however, the use of multiple horizontal lines to delimit the zones (e.g. sherds B4–6). The small triangular impressions noted on some of the sherds (e.g. B39) are also typical of Step 3 Beakers in East Anglia and beyond (e.g. Clarke 1970, figs. 378, 428, 430 & 437); though Clarke attributed many of these to his 'FN' category, they are often clearly not the result of fingernail impressions.

The undecorated cordoned rim (B41), though differing greatly from the rest of the Beaker from the site in terms of fabric and colour, is typical of early domestic Beaker assemblages. Undecorated rims are a feature that is found as far away as Dalkey Island in Co. Dublin (Liversage 1968), Glenluce in Southwest Scotland (McInnes 1964) and Ross Links, Northumberland (Tait 1965), as well as in areas much nearer Mucking such as Hockwold cum Wilton (Bamford 1970), Felixstowe (Clarke 1970, fig. 393) and Shoebury (*ibid.*, fig. 367). An undecorated rim sherd of this type very similar in fabric and dimensions to the Mucking sherd was found at the Beaker domestic site at Newgrange, located around the base of the collapsed mound (O'Kelly pers. comm.; Gibson 1981 fig. NEW 4: 3).[16] This is interesting in view of the general similarity of the Newgrange material to that of Eastern Britain.

The pottery with whipped impressions is normally termed 'Barbed Wire Beaker' – a rather inelegant and anachronistic term literally translated from the Dutch *Wikkeldraadstempel* – and so-called because the whipping cord, probably a piece of cord, flint or twig, *etc.*, often leaves

a faint trace in the plastic clay and this is then broken more or less at right-angles by the impressions of the actual whipped material. This is especially visible on sherd B16. Various people have expressed dissatisfaction with the term (Verlinde 1971; Bakker 1979; Clarke 1970) and, in concurrence with this dissatisfaction, the writer prefers to adopt the terminology normally used on Peterborough Ware to describe the technique: whipped impressions. The distinction must be made between loosely whipped and tightly whipped, though the basic technique is the same. Whipped impressions of this type are found on both fine Beakers and larger Pot Beakers on both sides of the North Sea and appear to be late in the sequence in the Netherlands (van der Waals & Glasbergen 1955), whilst in Britain they can be found at the beginning of the sequence, though in terms of radiocarbon dates there is probably a degree of contemporaneity between the Dutch and British variants (Lanting & van der Waals 1972; Lanting & Mook 1977).

As has been stated above, the rusticated pottery is often assigned to a Beaker context intuitively rather than quantitatively. Sherds such as B19 are well paralleled amongst domestic pottery such as Reffley Wood, Norfolk (Gibson 1981 fig. REF 1: 2), Fengate, (Gibson 1981 fig. FEN 15: 17) as well as among finer Beakers (Clarke 1970, figs. 369 [Yorks.], 370 [Middlesex], 380 [Kent]). The paired and single fingernail impressions are frequently found associated with Beaker on domestic sites and parallels are too numerous to mention. A glance though Clarke's (1970) corpus will give many examples. Generally speaking, the light fingernail rustication evidenced at Mucking is quite early in the sequence and not at all out of keeping with the fine pottery from the site. An exception to this, however, is the sherd with fingertip impressions (B21), around which are crescents of dislodged clay. This type of heavy rustication is generally much later, corresponding with the later stages of Beaker and even outlasting Beaker traditions. The fabric of this particular sherd is black throughout and so differs from the majority of the material under consideration here. Its attribution to the Beaker period, therefore, must be regarded as tentative.

A vessel that deserves individual attention is the finger-rusticated pot from the large pit group (B45). Like the fingertip decorated sherd just mentioned, this pot seems to be later than most of the rest of the Beaker material. The form of the pot is a necked vessel, unlike the majority of the Beaker fine ware that we have already attributed to Step 3/4. This necked vessel can be attributed to Step 6 and finds parallels amongst some of the profusely rusticated pottery associated with Step 6 Beakers at Hockwold cum Wilton (Bamford 1970), Chippenham Barrow V (Gibson 1980) and Castleshaw in Yorkshire (Clarke 1970, fig. 976); it also has Continental parallels (Clarke 1970, fig. 469).

The Beaker assemblage from Mucking constitutes a small number of fine ware Beakers and an amount of rusticated ware of Beaker affinity. It seems to have come from a small settlement of a rather amorphous nature, typical of the period. The fine Beaker can be used to glean an idea of date and the reconstructable profiles and the decoration suggest that the pots are attributable to Steps 3/4 of Lanting and van der Waals's scheme, which dates around 1900–1750 bc in this area.[17]

Worked Flint Elizabeth Healey

Lithic artefacts were present in nine of the 15 features that had Beaker pottery, and the quantity of flint in each varied greatly. One pit (735N × 482E) had 193 objects; two, 53 and 41, with the rest containing less than 15. Retouched pieces consist predominantly of scrapers, but also include a knife, a denticulate and an awl, as well as a complete hammerstone, a flake from a hammerstone and a core which has been re-used as a hammerstone. In contrast to the Grooved Ware pits, cores are present in most features.

As in the Grooved Ware pits, scrapers again occur in 'groups', pit 735N × 482E having 12 (Fig. 2.28) and pit 1156N × -26E 10, with pit 2356N × 878E having three. They tend to be smaller and less robust than those associated with the Grooved Ware, and at least three fall into classic thumbnail variety, but the majority are larger (up to about 40mm in length) with retouch on the end and part of a side, sometimes extending further. Overall, they are smaller than those in the Grooved Ware pits.

Core reduction as evinced from the Beaker pits seems to have been mainly uni-directional, begun from a cortical surface on a small nodule; there is cortex on both ends (1156N × 26E). Two flakes from pit 735N × 482E can be refitted on a core (Fig. 2.28). There is also a large proportion of unclassifiable chips from two of the pits which may indicate knapping debris.

Earlier/Middle Bronze Age

It is at this point in the sequence that Mucking's landscape first saw major monuments in the form of barrows and saw formal division by a fieldsystem. Discussing this activity in a separate chapter from the ensuing Late Bronze Age is, in many respects, arbitrary and unfortunate. Given, however, that the latter must lead from the presentation of the South Rings, there really is no alternative to this 'time-slicing'.

Barrows

Involving both inhumation and cremation rites, Mucking's barrows were 'small monuments' having both affinities and marked differences with those of the Ardleigh Group tradition (Erith & Longworth 1960; Brown 1999). The subsequent recognition during post-excavation of the eighth barrow has been discussed at the beginning of this chapter. Two points need making about the distribution of these barrows. Firstly, the majority, six, lay within the site's northern quarter, with only Barrows 1 and 8 lying at some remove in its south-central swathe (Fig.

Table 2.6. Flintwork from Beaker-attributed features.

Co-ordinate	Cores	Struck nodules	Flakes	Indet	Scrapers	Denticulates	Awls	Hammerstone	Total
620 × 584	2	1			1				4
622 × 583		1	4						5
622 × 584		2	19			1			22
735 × 482	3	2	96	4	4		1	1	111
752 × 730	2	1	29	1				1	34
1045 × -42	1		3						4
1156 × -26	1			1	9				11
1850 × 810			1						1
2356 × 878	2		2						4
TOTAL	11	7	154	6	14	1	1	2	196

2.29). Secondly, there does seem to be a propensity for their 'pairing'. This is most obvious in the cases of 4/5 and 6/7, but – with a much greater stand-off – could also be postulated for Barrows 1/8 and 2/3 (32–40m *vs*. 67–97m).

The average density of the barrows' flintwork is shown in Table 2.8 (in terms of number of flints per metre); those for Barrow 5 can be seen to have been very high. Their finds densities do not seem, however, to reflect their role as places of 'special' deposition, but, instead, their relationship to both earlier and subsequent settlement activity. Barrows 3 and 8 respectively coincided with the areas of Scatter Zones II and IV (see Figs. 2.3 & 2.29). Even more significant, Barrows 2–5 and 8 lay in the areas of subsequent, Late Bronze Age settlement (with the area around Barrow 5 also seeing Middle Bronze Age occupation; see below). Tellingly, Barrows 6 and 7, lying beyond that settlement swathe, had the lowest recorded densities. More Late Bronze Age material probably derived from the former – the nearest to the settlement-area – and cremations of that date may also have been inserted into it (see below).

Barrow 1

This was relatively isolated, centred on 735N × 300E (Fig. 2.29). Its ditch described a complete circle, but was cut by a *Grubenhaus* in its southeastern sector. The diameter of the barrow, including its ditch, was 9.75m. Its interior contained six postholes, with a seventh slightly cutting the surrounding ditch.

The barrow's ditch had a 'V'-shaped profile and was 1.37–1.68m wide and *c.* 0.5m deep (Fig. 2.30). It contained three fills of gravelly loam. The lowest of these was deposited soon after the ditch's construction and had no occupation debris. The second appeared to have accumulated at a slower rate, but still contained no indication of nearby occupation. The third fill, evidently accumulating at an even slower rate than the second, indicated the presence of nearby occupation. At a later date, a small 'hearth' was cut into the top of the ditch; it yielded a single sherd of possibly Iron Age pottery.

A number of worked flints were recovered from the ditch: two blades, several possible cores, 24 fragments of possibly worked flint and a calcined flint disc. Pottery was found only in the uppermost ditch fills. It consisted of small, very abraded fragments and, as well as prehistoric wares, included Romano-British sherds.

Although no human bone was recovered from within the barrow, a shallow central soil-mark contained a few charcoal flecks. It is possible that this was originally a central cremation, which was truncated either by the box-scraper or at an earlier point in the site's history.

No absolute date is available for this barrow. Dating evidence is, therefore, available only for the uppermost ditch fill that contained both Romano-British and 'prehistoric pottery'. Given that the ditch fills appear to have accumulated very slowly, the only inference that can be drawn with certainty is that the barrow was constructed well before the Romano-British period.

The occurrence of a mound associated with Barrow 1 is suggested by the presence of primary silting along the inside edge of the ditch's profile. This may, however, be contradicted by a series of postholes forming an arc just inside the barrow ditch. These could result from the construction of some form of mound-revetment barrier. Unfortunately, they cannot be dated as no finds were recovered from them. In relation to this, it is worth noting that a *Grubenhaus* cut Barrow 1 and an Anglo-Saxon pit was dug within the monument's interior. It is difficult to imagine why Anglo-Saxon features would have followed the former outline of the barrow so carefully. For this reason, it is

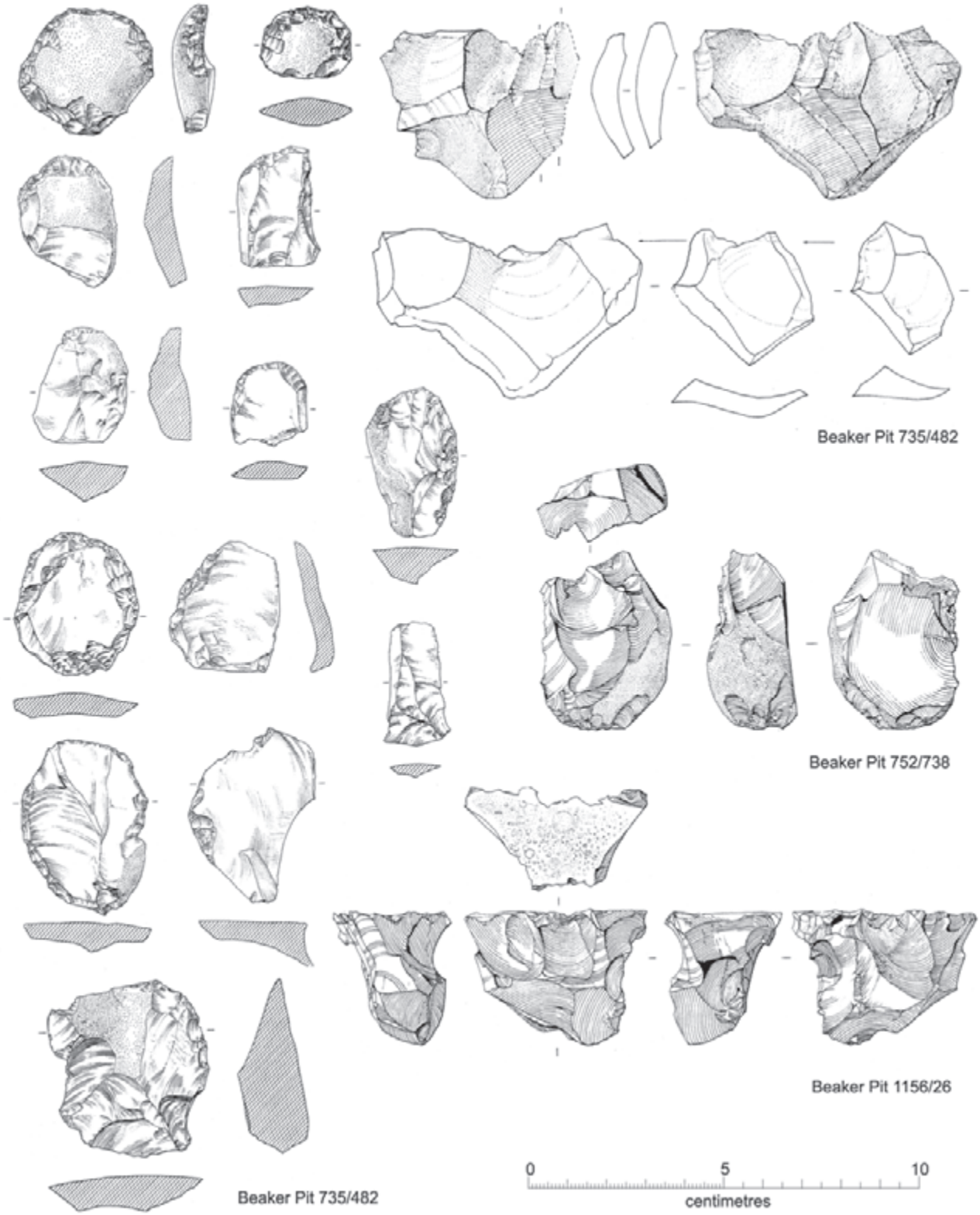


Figure 2.28. Flintwork from Beaker-attributed pits.

more likely that the postholes were contemporary with the barrow itself.

Barrow 2

This lay in the main area of barrows at the northern end of the site (1872N × 701E; Fig. 2.29). It consisted of a ditch with an external diameter of 14.0m (int. diam. 11.6m) and contained a central possible cremation. Several other possibly contemporary features were found within and around the area of the barrow. To the northwest, it was

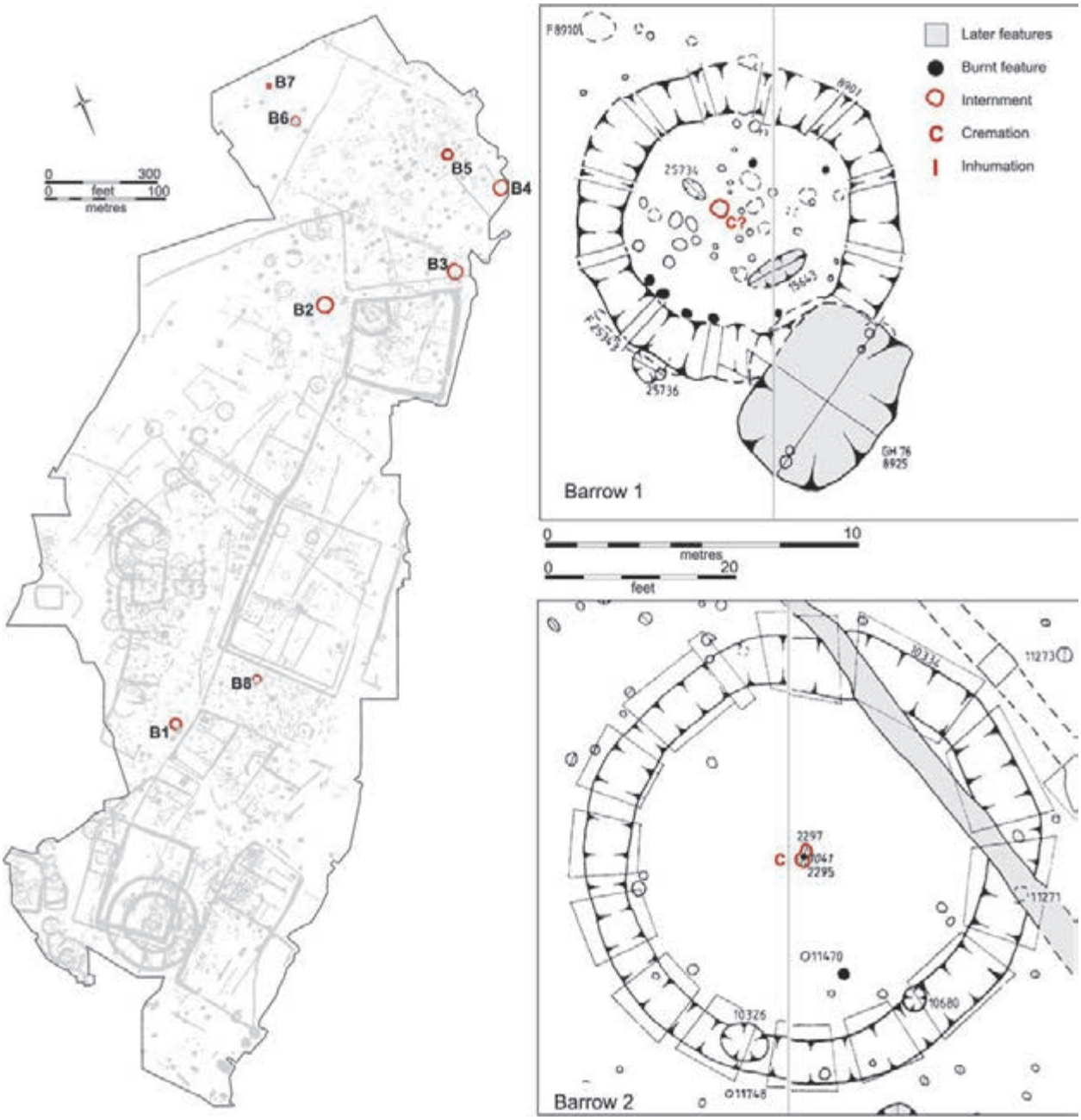


Figure 2.29. Barrows: left, location plan; right, base-plans Barrows 1 and 2.

cut by a modern ditch; two prehistoric pits had been cut into the barrow's ditch itself.

The barrow ditch was 1.2m wide on average and 0.23–0.48m deep, varying at different points along the circuit (Fig. 2.30). It had up to four fills, of which the lowest was a dark brown sandy loam with occasional pebbles. Above this was a very pebbly (although variable) fill that also incorporated brown loam; the final fill was a medium brown loam with occasional pebbles.

The material filling the ditch appears to have come mostly from the interior of the barrow. The bottom fill was present largely along the inner side of the ditch, whilst the pebbles within the second fill increased markedly in size from the inner to the outer edge, suggesting that the largest pebbles had rolled furthest. The excavator suggested that the sorting of the ditch fills was indicative of natural erosion of a mound rather than deliberate backfilling, and that the gravelly second deposit may have built up after the loss of a revetment or when it eroded over any flat berm-area. The uppermost fill is likely to represent the stabilisation of surrounding soils, possibly related to a turf cover that had developed over an internal mound. The thinness of the primary ditch deposit may indicate that the ditch had been re-cut.

The ditch contained significant quantities of worked flints and pottery: more than 60 flints and over 70 sherds (as numbers were not indicated for all ditch sections this may be a substantial underestimate). Late Bronze Age

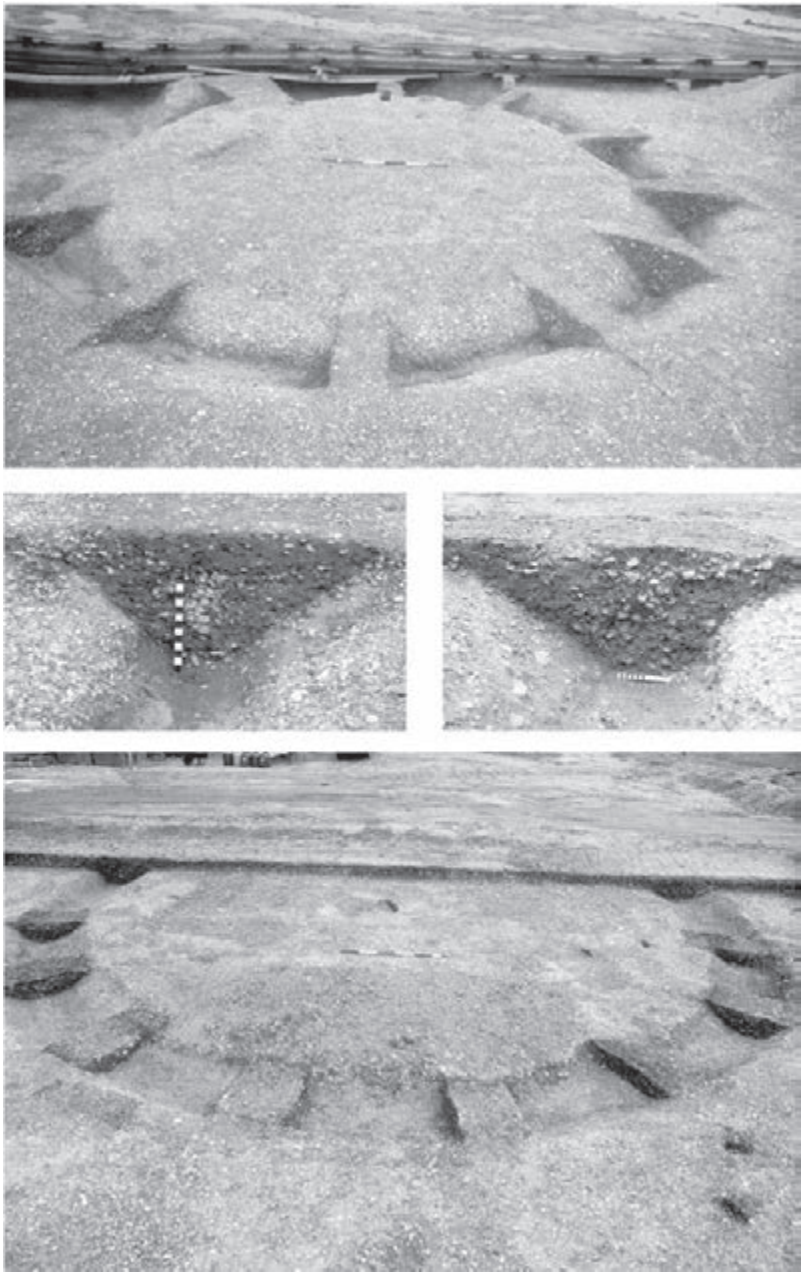


Figure 2.30. Barrows: top and left-centre, Barrow 1; right-centre and bottom, Barrow 2.

Table 2.7. Characteristics of Mucking's barrows (NB: the low density of flint from Barrow 8 is surely attributable to the fact that it was thought they were digging an Anglo-Saxon cemetery-related feature and may well have paid little heed to any potential prehistoric material).

No.	**Internal diam.** (m)	**Cremations**	**Inhumations**	**Pottery, ring-ditch** (no. sherds)	**Pottery, all contexts** (no. sherds)	**Flint, all contexts**
1	7.00	1?	-	≥5	≥5	>25
2	11.58	1	-	>70	>100	>50
3	10.67	-	1	22	21	35
4	10.05	-	-	>26	>42	>29
5	6.10	1	-	42	53	>198
6	7.00	(2?)	1	'Many flint-gritted sherds'	Many flint-gritted sherds'	13
7	2.45	1	1 (+1?)	-	-	1
8	6.00	-	-	>225	>225	1*

Table 2.8. Flint densities.

Feature	No of flint	Flint per m
Barrow 1	25	0.6
Barrow 2	50	0.8
Barrow 3	35	0.9
Barrow 4	29	0.7
Barrow 5	198	4.2
Barrow 6	13	1.0
Barrow 7	1	0.1
Barrow 8	1	0.05
BA double ditch line	122	1.0
North Enc. northern ditch line	579	1.8
North Enc. southern ditch line	255	1.0
Central ditch line	342	1.0
DDE Outer ditch line	152	0.4
TOTAL	1802	-

pottery forms were found in the upper fill, but also in the fill below; the presence of decoration on a significant proportion of sherds further places them in the later Late Bronze Age. This may relate to the re-cutting of the barrow ditch, which perhaps took place some considerable time after its original construction. Although present throughout the barrow circuit, the pottery was more concentrated in the northern half than the southern, with a particular 'spike' in the northeast.

The flints recovered included flakes, cores, a blade and a barbed and tanged arrowhead. Additional finds were a fragmentary loomweight of unknown date, an iron nail and a possible iron object or slag. It was not indicated whether these were found on the surface or within the fill, but it seems most likely that they were intrusive.

Almost in the centre of the internal barrow area were two small, inter-linked 'postholes'. Bone powder was found on the surface of these and their upper fills contained bone powder, occasional bone fragments and charcoal. It was suggested by the excavators that these represented two consecutive postholes (with the larger being slightly earlier than the smaller). The burial of cremation debris of some sort (Cremation 1041) then followed the removal of the second post. It should be noted, however, that the 'postholes' showed no evidence of post-pipes and there was no other indication of a structure within the barrow, making it uncertain why these features were not regarded simply as two small pits dug for the placing of cremated remains.

The human remains from Cremation 1041 consisted mainly of powder, with only occasional larger fragments of bone, and were mixed with large quantities of charcoal powder. This suggests that it represents the burial of pyre debris rather than a distinct 'body' as such. Only 41g of bone was recovered, of which the largest fragment was 0.9cm long. Relatively large fragments of bone usually survive the cremation process even in modern crematoria, indicating that the corpse is unlikely to have been entirely reduced to such small fragments in this case. In addition, the typical weight of a cremated adult corpse is between 1.5 and 3.5kg (Trotter & Hixon 1974), far greater than the 41g identified here. The bone from this cremation shows signs of intense burning, all of it being coloured white, which supports the idea that this was a 'token deposit' of pyre debris from the hottest part of the pyre. Accompanying Cremation 1041 were several sherds of black flint-gritted pottery, a brown flint-gritted sherd and some animal bone as well as numerous burnt flints. Unfortunately, as the pottery from this context was apparently not analysed, no precise dating is possible.

Nine additional small pits were excavated within the area of Barrow 2 (e.g. 10326, 10336 & 10680). Of these, several were defined by their excavators as 'postholes'. They were all around 10cm deep and 25cm wide, with concave profiles. Three contained flint-gritted pottery. One, situated at 1860N × 705E, had large quantities of fire-affected flint; these 'postholes' did not form part of an identifiable structure.

Several pits and postholes immediately outside the barrow may have been contemporary. One posthole contained a sherd of red/black flint-gritted pottery (not further described), whilst several had burnt flints. Of the two later pits that cut into the ditch itself, both included a significant number of flint-gritted pottery sherds, with one containing a piece of a possible loomweight.

The date of Barrow 2 must be seen as pre-Late Bronze Age, as Late Bronze Age pottery forms were evidently found within the fill of the re-cut. The barbed and tanged arrowhead may be indicative of an earlier Bronze Age attribution, but as its exact location and condition have not been recorded, it is impossible to tell whether it was residual.

Barrow 3

Centred on 1960N × 1055E, Barrow 3 was part of the loose cluster of barrows within the northern part of the site (Fig. 2.29). It consisted of a slightly irregular, annular ditch with a central inhumation burial; it was cut by three ditches, two Bronze Age and one undated. The external diameter of the barrow was 13.1m and its internal diameter was 10.7m. As shown on Figures 2.31 and 2.37, along its northeastern aspect its ditch appeared to have narrowed and its perimeter flattened somewhat; this possibly related to the paired Middle Bronze Age field boundaries on that side, and this crucial relationship will be further discussed in the following section.

The ditch delimiting the barrow was of variable width, averaging 1.22m, and was *c.* 0.3m deep (Fig. 2.31). Its 'U'-shaped profile had a distinct change in slope halfway down, with its moderately sloping sides becoming near vertical. Between three and four fills were present, of which the uppermost consisted of loose light brown pebbly sand, the next by depth was of pinkish pebbles and sand; the basal fill being sandy silt and gravel (the fourth fill was not described).

Over 20 sherds of flint-gritted pottery were retrieved from the barrow ditch, including three rims and two bases; two sherds of grey/white-gritted sherds were also present. In addition to the pottery, 26 flint flakes, two possible cores, three fragments of flint nodules and a fragment of a possible Bronze Age cylindrical loomweight were recovered.

Almost at the centre of the barrow was a sub-oval pit with a pinkish sandy fill. Within it were the remains of a

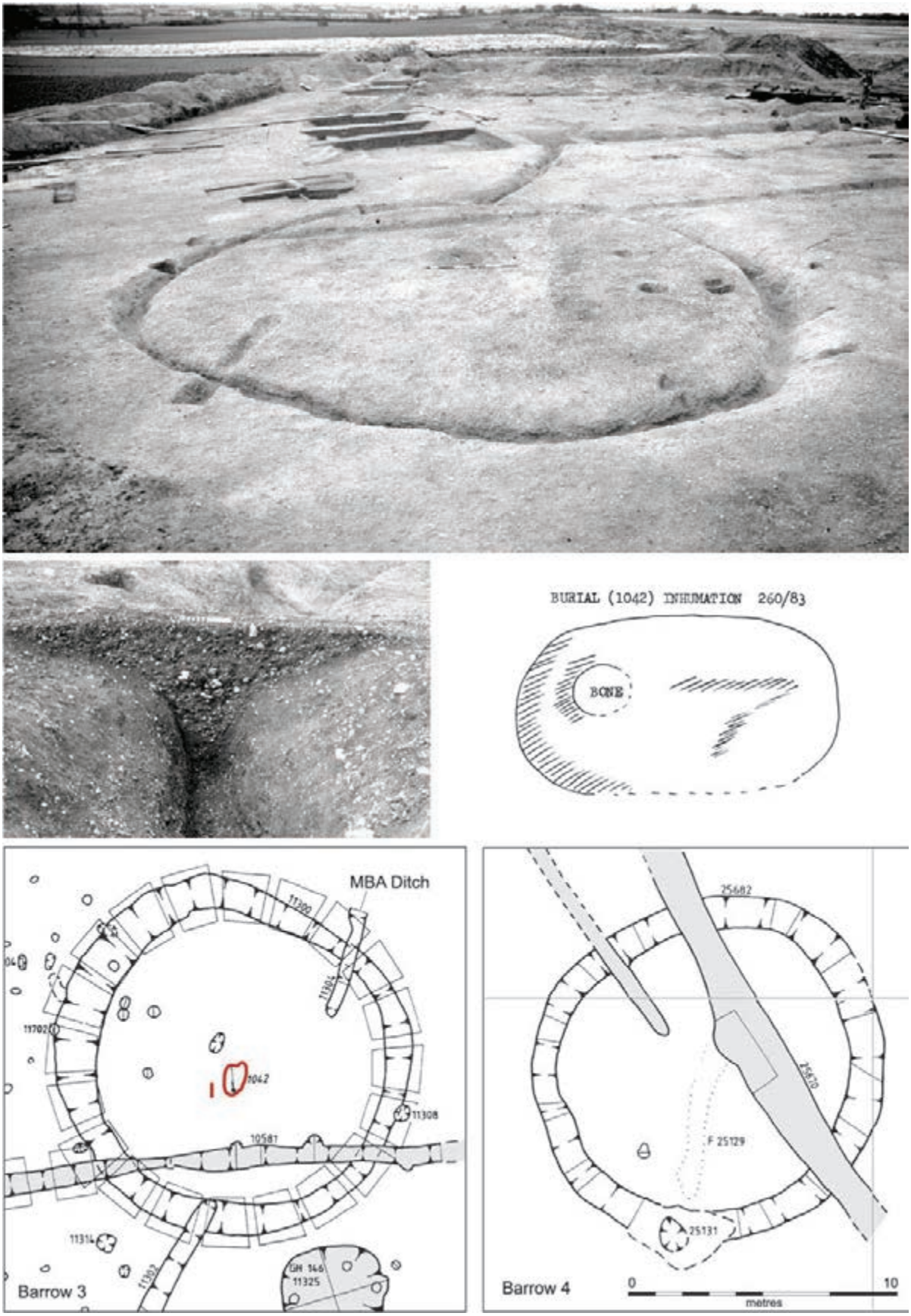


Figure 2.31. Barrows: top, centre and bottom left, Barrow 3 (see also Fig. 2.37); lower right, Barrow 4.

crouched inhumation burial (1042), which survived only as a soil stain and a few fragments of bone. The individual had been placed on their right side with the head to the north. A single fragment of undiagnostic pottery (lost in excavation) and four flint flakes were retrieved from the grave fill.

It appears that Barrow 3 originally had an internal mound. This is suggested by the primary ditch deposit: silty material from the barrow's interior. In addition, a ditch-line of Middle–Late Bronze Age date cut part of Barrow 3, but left a gap for the barrow's centre; the fieldsystem's boundary thus terminated at the point where a mound would have been expected.

Further confirming the monument's Middle Bronze Age attribution, a pocket of charcoal within the top of its primary ditch fill gave a date of 1590–1105 cal. BC (HAR-2339).

Barrow 4

This was apparently excavated in some haste after quarrying plans were changed at short notice. It was centred on 2190N × 1180E, had an external diameter of 12.8m and an internal diameter of 10.1m (Figs. 2.29 & 2.31). No burials were identified within it and the only possible features excavated were probably of natural origin; the barrow was, though, truncated by two modern ditches and these could have eradicated interments.

The barrow's ditch was 'U'-shaped in section and had an average width of 1.37m, near-vertical sides and a flat base. It contained five fills, the bottom of which was a banded sand, which may, in fact, have been natural. This was overlain by buff-coloured sand; above this was a grey sand with frequent pebbles, which was itself overlain by a greyish black layer with a central 'belt' of charcoal and ash. There is some slight evidence that the initial fill, appearing to have built up from slumping, had predominantly entered the ditch from the inner side and may be reflective of either an internal bank or a mound.

The ditch contained a small quantity of pottery (25 sherds), including four flint-gritted and two grass-tempered sherds. Sixteen worked flints and a considerable quantity of burnt flints were also recovered, as well as a broken piece of 'Sarsen' and various objects from later periods, including a clay pipe stem, a piece of iron and a 'modern-looking' piece of tile.

Whilst Barrow 4 contained no noticeable internal features, a Bronze Age pit (25131), *c.* 3.7m long, cut the barrow's ditch itself. This seems to have been related to an episode of burning, which left the southern side of the ditch discoloured. It had been filled with a mixture of charcoal dust, heat-shattered flint and some pea-grit. Radiocarbon dating of charcoal from this pit yielded a date of 1450–920 cal. BC (HAR-2343); there were no recorded finds.

No mound was indicated by the ditch deposits, which showed no evidence of slumping; however, it is striking that the barrow centre was not cut by later features until modern times. Although the presence of late material within the ditch (especially a clay pipe) could have cast doubt upon its prehistoric date, the fact that it was cut by a pit dated to the Middle–Late Bronze Age indicated that Barrow 4 must have dated to, at least, the Middle Bronze Age.

Barrow 5

Centred on 2281N × 1033E, Barrow 5 had external and internal diameters of 9.75m and 6.1m respectively (Figs. 2.29 & 2.32). It did not appear to have been cut by later features, with the exception of a single modern ploughmark that had disturbed the central cremation.

The encircling ditch of Barrow 5 was *c.* 2.7m wide with a 'U'-shaped profile. Its depth was not noted. The slope of the sides varied from shallow towards the top to steep from about half-way down. All five fills consisted of sand, but with different quantities of organic matter, increasing from the bottom upwards. A small patch in the ditch base showed evidence of burning, although it cannot be established whether burning took place within the ditch or if burnt material was introduced to it. The ditch section hints of at least two, and possibly three, re-cuts.

Finds from Barrow 5's ditch included at least 42 pottery sherds, of which all but one were flint-gritted. One fragment of decorated pottery may be from a Collared Urn, whilst the majority belong to the Deverel Rimbury tradition (see Brown, below); this may hint at a relatively long use-life for Barrow 5. Flints were also common within the ditch, which contained at least 180. These included a probably leaf-shaped arrowhead, a hammerstone and seven cores, in addition to various flakes, blades and scrapers. Heat-affected flint was also present, as were also a large piece of ferrous sandstone, some possible burnt ?tooth fragments and a piece of possible slag.

At the centre of the barrow was a pit, 0.48m wide and 0.28m deep, that contained cremated human remains (Cremation 1045). The gravel surrounding the pit's edges was of a reddish colour, indicating that it had been subjected to intense heat. Within the pit, several deposits could be made out. The basal fill was a fine grey ashy sand with occasional pebbles. There was no bone at the bottom of this horizon, but this did begin to appear towards the top. Above this was a deposit of very charcoally material with fragments of cremated bone and reddened/calcined flints, from which was recovered a perforated bone button (Fig. 2.32); the top deposit consisted of sand with moderate pebbles and some fragments of cremated bone.

Just to the east of the pit was a small hollow with more cremated bone. While it is possible that this was the very truncated remains of a second cremation, it is more likely to derive from material from the central cremation through plough-disturbance.

The cremated bone from 1045 totalled 364g. Whilst this is insufficient to indicate the burial of a complete cremated body, it does at least point towards deliberate deposition of the human remains. The largest preserved fragment was 4.9cm long. The cremation had been carried out very thoroughly and all bone fragments were white, indicative of high temperatures. Given the discolouration of the gravel surrounding Cremation 1045, it seems most likely that this represents either the remains of an *in situ* cremation, or one in which the material was buried whilst still very hot.

Two radiocarbon dates were obtained from charcoal in the primary ditch fill of Barrow 5. These gave dates of 1750–1420 cal. BC and 1680–1315 cal. BC (respectively, HAR-2342 and HAR-2340). This suggests that barrow construction most likely took place at some point between

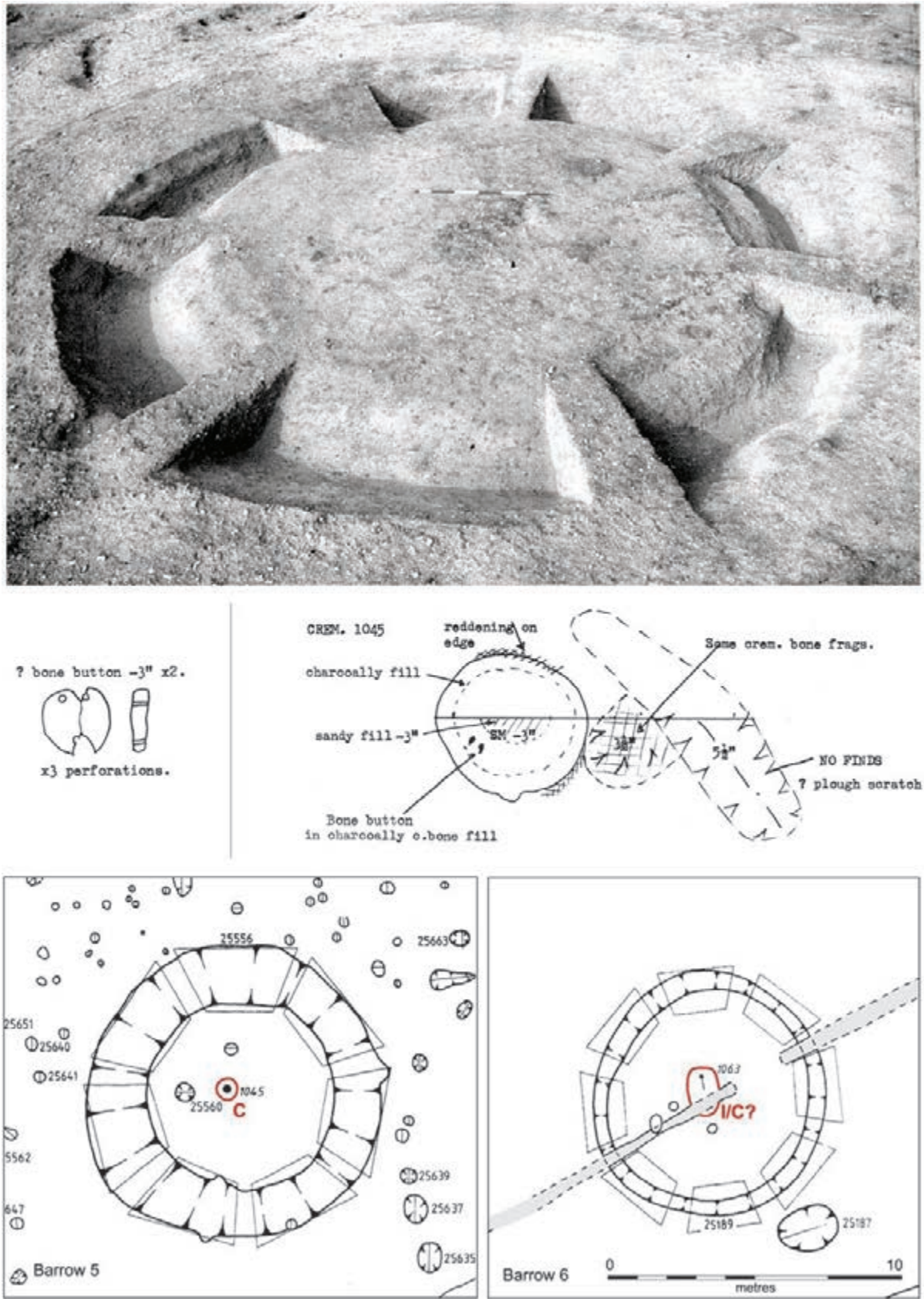


Figure 2.32. Barrows: top, centre and bottom left, Barrow 5; bottom right, Barrow 6.

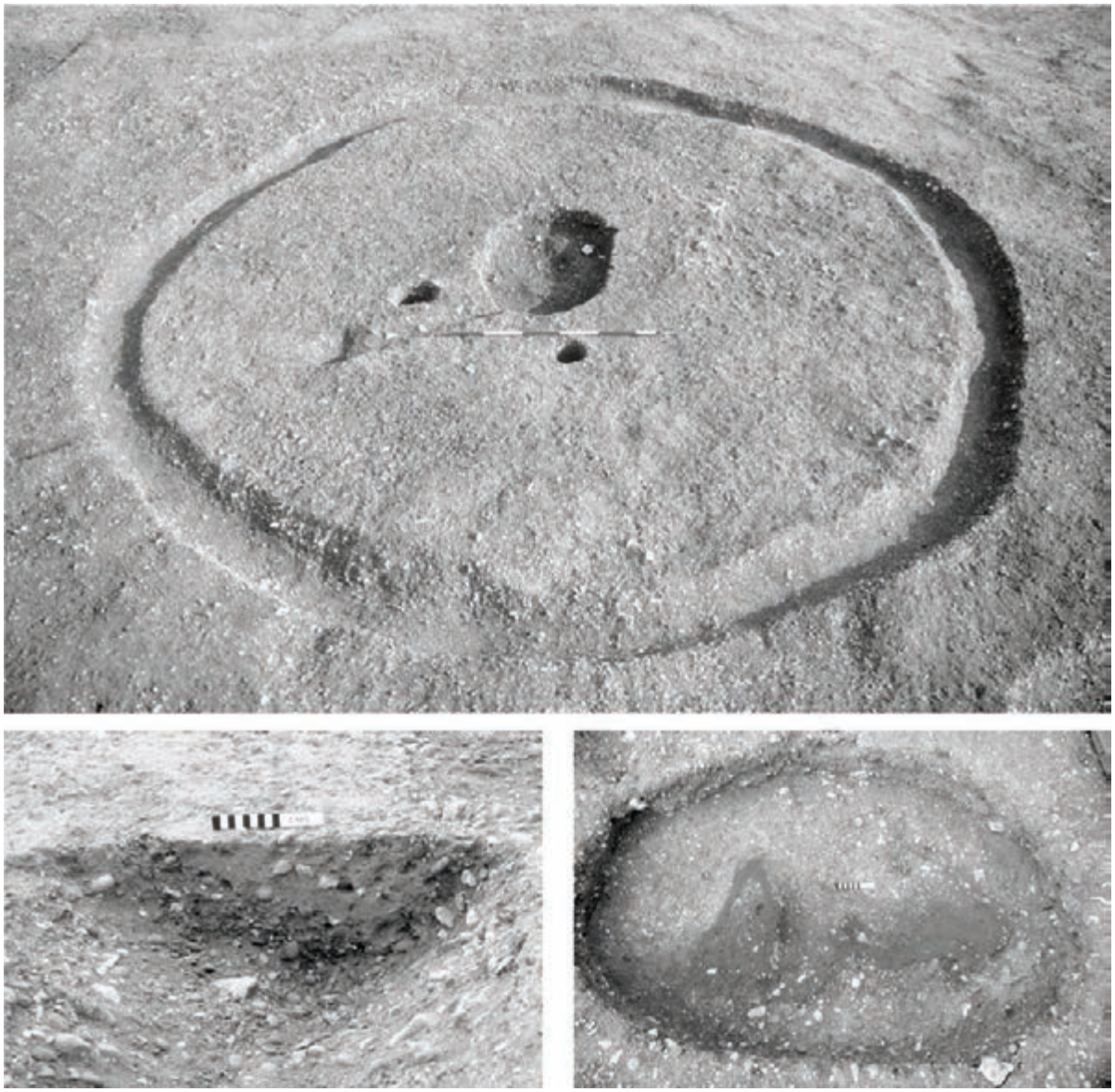


Figure 2.33. Barrow 6.

1680 and 1420 BC, placing it in the late Early or early Middle Bronze Age and making it the earliest of the dated Mucking barrows.

Barrow 6

Situated at the far northern end of the site, and only *c.* 30m away from Barrow 7, Barrow 6 was centred on 2369N × 623E (Fig. 2.29). It had an external diameter of 7.93m (int. diam. *c.* 7.0m) and was cut by a modern ditch (Fig. 2.32). Three 'postholes' were found within Barrow 6, but these contained no finds and one cut the modern ditch, suggesting that they were unrelated to the monument.

No description is available for the ditch of Barrow 6, but it is possible to calculate an average width of 0.46m. The exact number of finds from its fill do not appear to have been recorded, but 'many flint-gritted sherds' (all apparently from the top three fills) were found, as were eight flint flakes, a flint core and an iron object possibly introduced by burrowing animals. The pottery was of Late Bronze Age attribution and included a well-burnished carinated bowl and a shouldered jar. Birley's analysis of the remainder of the pottery present indicated that it may all have originated from these two vessels and he suggested that these pots may have represented additional cremation burials inserted into the barrow during the Late Bronze Age.

The inhumation grave was situated almost at the centre of the barrow (Inhumation 1063; Fig. 2.33). The vertical-sided grave pit was *c.* 1.8 × 1.2m and oval in shape. No bones were recovered from the inhumation within it, which survived only as a body silhouette. This showed that the individual was buried on their right side in a crouching position. A patch of charcoally silt was visible just in front of the body (with the body apparently being curled around it) and may represent the remains of a disturbed earlier cremation burial. A scrap of red pottery and four flint flakes were the only finds from this burial; these were probably residual.

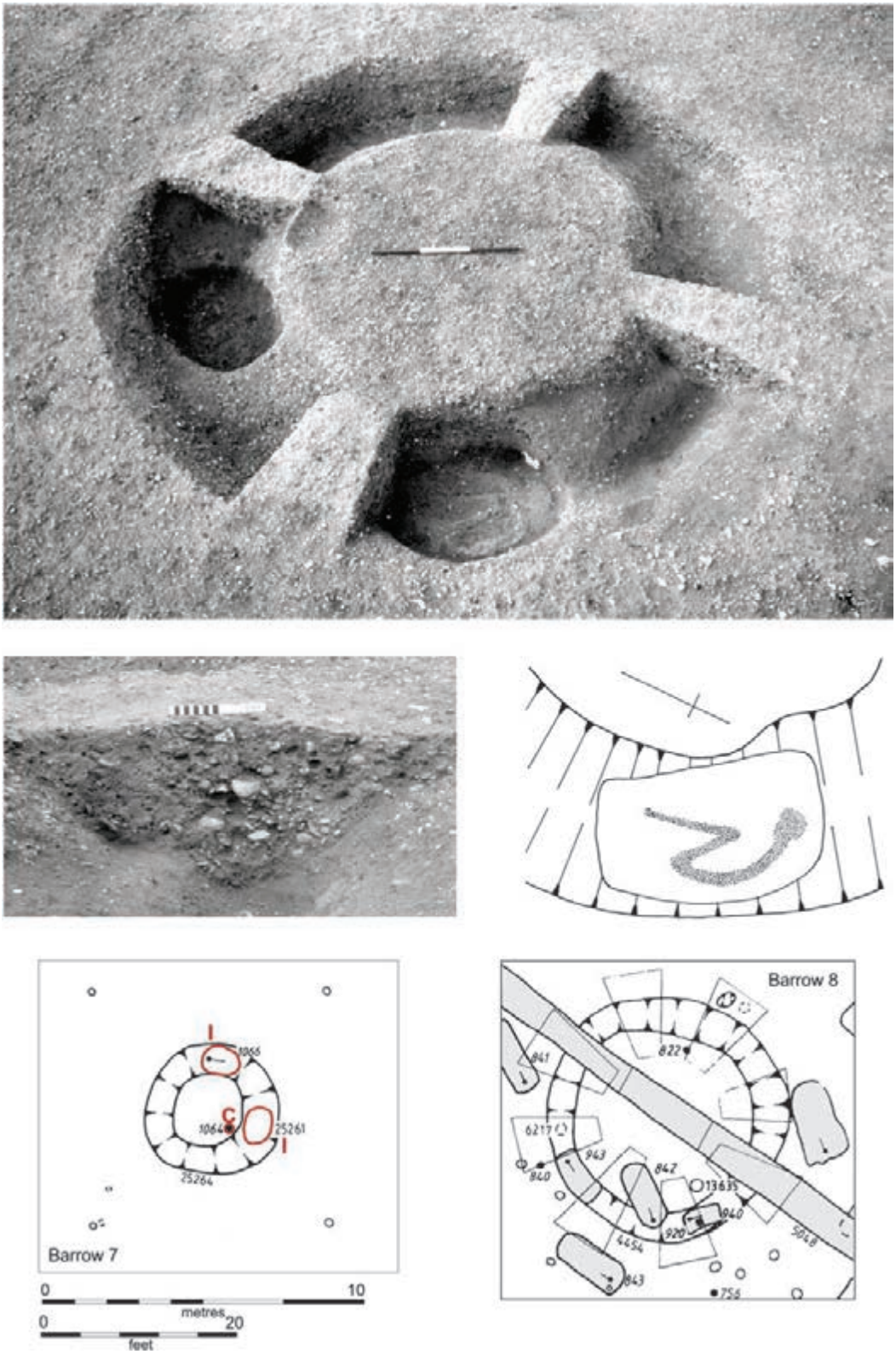


Figure 2.34. Barrow 7: top, centre left and right and bottom left, Barrow 7; bottom right, Barrow 8.

Two later deposits of cremated bone apparently cut into the central inhumation of Barrow 6, both at its northeastern end. These were not further described, so that it was not possible to ascertain their date; they were possibly, though, associated with Prehistoric Cemetery I (i.e. later Bronze Age; see Fig. 3.8).

Barrow 7

This was the most northerly and also the smallest of the excavated barrows (Fig. 2.29). It was centred on 2465N × 550E and had an external diameter of just 4.27m (int. diam. 2.44m; Fig. 2.34). Despite its small size, Barrow 7 had the largest number of possible graves. A cremation was excavated within its ditched interior; an inhumation was cut into its encircling ditch and a further feature cut into the ditch may have originally contained another burial.

The barrow's ditch had a relatively flat bottom and its outer side was slightly steeper than the inner. The lower fill was a light to mid brown sandy loam, above which was a band of pebbles. Only one find was retrieved from the feature, a flint blade possibly retouched into a scraper.

Cremation 1064 from within Barrow 7 was situated in the southeast sector and may have slightly cut its ditch (this is indicated in one notebook entry, but another records that the ditch had not been identified at the time that the cremation was excavated, which suggests that this relationship is somewhat dubious). The small pit in which it was placed was *c.* 0.5m long by 0.3m wide and 0.23m deep. It contained black charcoal and pebbles, together with bone (whether fragments or powder was not mentioned; no bone report exists); analysis of the charcoal enabled it to be identified as holly.

Inhumation 1066 was placed within an oval pit apparently cut into the northern portion of the barrow's ditch. The 1.07m long, 0.66m wide and 0.46m deep pit had a single fill of mid brown pebbly sand. Surviving only as a soil stain, the body had been placed in a crouched position on its right side (Fig. 2.34).

A possible third grave was identified in the eastern portion of the monument's ditch (25261). This took the form of a sub-rectangular pit, *c.* 0.6m long, 0.5m wide and 0.45m deep. The fill was clean gravel with no apparent body stain, although it was suggested that a small area of slightly darker loam might have been the body stain of an infant.

As is evident on the plan (Fig. 2.34), the barrow may have been framed by a *c.* 7.5m-square four-post setting; certainty of their interrelationship is, though, not possible.

Barrow 8

This was not originally identified as such, having been thought to be an Iron Age roundhouse by its excavators. Although its existence was suspected (see above), it was only 'formally' distinguished as a possible prehistoric barrow during analysis of Anglo-Saxon Cemetery II, within which it was situated (Hirst & Clark 2009, 453, fig. 234). The question of whether this feature was, in fact, a barrow cannot entirely be resolved at this juncture; it is only possible to set out the available evidence for and against.

Centred on 850N × 520E, the defining ditch of Barrow 8 did not register as a cropmark (Fig. 2.29). It should be noted that a period of two years passed between its original identification and its excavation, which meant that the surface had weathered considerably by the time it was dug. It had also been subjected to extensive animal disturbance, and in some portions rabbit burrows made it impossible to locate the ditch sides. A number of later features cut it, including several Anglo-Saxon graves and cremations: Graves 943 and 940 were cut into and aligned on its 'circle', Cremation 920 cut Grave 940, and Cremation 822 was located just inside the ditch along the northern sector (Fig. 2.34). A later Medieval ditch ran across the centre of the barrow. The combination of weathering, animal burrowing and disturbance by later activity has severely hampered interpretation of this feature.

The internal area defined by the barrow's ditch measured *c.* 5.5 × 6.0m. The ditch was 0.7–1.2m wide and 0.25–0.5m deep. The profile varied considerably from a sharp 'V' to a wide, flat-based 'U'. The fill sequence was evidently difficult to distinguish, in part due to animal disturbance, but there seem to have been between two and three fills for most of the ditch's circumference. The top fill was a mid brown loam with varying quantities of pebbles, whilst the lower fills varied, either being lighter brown with large proportions of pebbles, dark brown with fewer pebbles or clean gravel. The section at 855N × 530E hints at the presence of a re-cut, but, not drawn very precisely, the exact nature of the relationships between fills is unclear. Elsewhere, the fill sequence seems to indicate gradual natural infilling, although again this cannot be determined for certain.

No prehistoric burials were identified within Barrow 8, although this possibly reflects the fact that the centre was cut by a Medieval ditch, which would have truncated away any central burial. Within the 'ring-ditch' there were several small concentrations of human bone and charcoal. These, however, were not associated with grave pits and show no sign of having been either contained or placed with associated objects. Given the presence of Anglo-Saxon cremations in this area, the extent of animal disturbance and the small quantities of bone involved, it is conceivable that these concentrations are an artefact of later disturbance. Despite this, the possibility that they represent the remains of prehistoric cremations cannot be ruled out.

The dating of Barrow 8 as a prehistoric feature is based upon the pottery assemblage from its ditch. This consisted of *c.* 220 flint-gritted sherds, two Romano-British and three possible Anglo-Saxon sherds; the latter are likely to be intrusive. The flint-gritted sherds were, unfortunately, not mentioned in the available prehistoric reports and, without this data, it is hard to do more than assign Barrow 8 a generic prehistoric date. The fact that it was situated less than 100m from Barrow 1 may indicate that a second barrow cemetery was associated with the pre-South Rings fieldsystem, in which case it would be attributable to the Early or Middle Bronze Age (see also Chap. 3 below concerning the ambiguous status of the nearby Roundhouse 40).

The Fieldsystem

There is no need to detail the characteristics of the fieldsystem's individual boundaries. All were fairly minor, 0.4–1.0m across and 0.2–0.45m deep and, compared to later-phase features, their fills were relatively leached, mid brown loams with gravel, that graded with depth to sandy gravels. To aid referencing, each of the system's main/definite axes has been assigned a specific number (Bronze Age Ditch/BAD 1–19), these being cross-referenced below to their *Atlas* Context/Feature entry (Fig. 2.35):

Figure 2.35. Middle Bronze Age: upper left, fieldsystem and barrows (with North Field-area detail below); upper right, distribution of Middle Bronze Age pottery and cylindrical loomweights (with Cluster I indicated).

BAD 1	5/7 & 3013
BAD 2	15/163
BAD 3	8464
BAD 4	3616
BAD 5	3331/F.3452
BAD 6	F.646
BAD 7	10070
BAD 8	11531
BAD 9	11513
BAD 10	11042
BAD 11	11380
BAD 12	10908 (*et al.*)
BAD 13	10664
BAD 14	10693
BAD 15	10691
BAD 16	F.10873
BAD 17	12011 (*et al.*)
BAD 18	25110 (*et al.*)
BAD 19	25336.

As mentioned in this chapter's introduction, most of the fieldsystem elements had been distinguished in the course of the fieldwork programme and were duly illustrated in the both the site's later Bronze Age summary (Fig. 2.36; Jones & Bond 1980) and also the plan of the North Enclosure-area that appeared in Riley's 1987 paper (Fig. 2.36). The main difference with our determination is – aside from the subsequent identification of Barrow 8 – the removal of the locally paired curvilinear ditches which they saw as extending northeast–southwest throughout the middle half of the site. Although their attribution is far from unequivocal, these would rather seem to be of Iron Age date, and they do not obviously 'fit' with the Bronze Age system.

On the site's early 1980s dye-line phase plans (Figs. 1.17 & 2.1) a number of other fieldsystem ditches were though shown in the site's central swathe. In fact, on the version of these that introduces this chapter (Fig. 2.1) a distinct fieldsystem 'block' was depicted as extending south from the area of the Double Ditch Enclosure, including within it Barrow 1. On Figure 2.35, these putative boundaries are not assigned a 'BAD' number, but only identified as possible candidates. The main reason for this ambiguity is the status of the 'T'-set boundaries, 4436 and 5145. While it could be argued that the line of the latter was complementary to Barrow 8, as will be discussed in Chapter Four below, 4436 appears to relate instead to a later, Conquest Period system (a matching ditch to the north definitely cuts through the Late Iron Age square barrows). As also shown on Figure 2.35, there are other such tentative fieldsystem boundaries in the north of this central zone. Of these, the most convincing are 10052 and 10122 that ran parallel with Ditch 7.

The fragmentary nature of the fieldsystem is probably largely attributable to machine truncation. Its axes are obviously incomplete, with this being more marked across the southern two-thirds of the site. Though its northern and southern portions share the same approximate northeast–southwest alignment (and return axis), they were somewhat skewed to each other. The northern portion of this system presents a far more coherent plan and seems to have been arranged into two, large field 'blocks' of comparable size (Fig. 2.35):

I) BAD 7, 8, 10, 14 and 17; 116 × 163m (18,908sqm)
II) BAD 15, 16, 18 and 19; 114 × 166m (18,924sqm).

The role of Ditch 13 – set within Block I – in relationship to this basic structure is unknown; it may have been either some manner of sub-division and/or a later elaboration (BAD 8/9 being similarly ambiguous).

Regarding the layout of these two field blocks, a number of points need noting. The first is that the Ditch 10 boundary was interrupted on either side of what must have been the interior mound of Barrow 3. While showing respect for its interment – and, in this, the barrow's location in the corner of the field might also be relevant – this indicates that the fieldsystem post-dated at least that monument. Having said that, as is shown on Figure 2.37, the northeastern aspect of Barrow 3's 'circle' flattened and narrowed. Seemingly occurring in relationship to the Ditch 14/15 boundary, this could alternatively suggest that portions of the fieldsystem might have pre-dated at least some of the monuments.

The next point to note relates to the double-ditch line dividing the two main 'blocks'. The manner in which the more northerly of these paired boundaries joined with Ditch 17, effectively containing the southern of the two block-dividing ditches, would indicate that they did not mark a droveway, but instead probably delineated a hedge-line. This interpretation would be further confirmed by the narrow interval between the 'double' boundaries: only 1.6–2.75m wide. At Fengate, such narrow 'pairings' have been shown to be hedge- rather than drove-related; the latter being much wider and without such 'end-closure' (Evans *et al*. 2009, 45, fig. 2.13).

The third factor to emphasise is that the northwestern boundary of Block II (BAD 18) clearly came off from the corner of Block I and, therefore, was secondary to Ditch 15 and, with it, the southern field block (I; Fig. 2.35).

Finally, there is the fact that within this area, 1.1–10.7m-wide 'interruptions' occurred along the length of its boundaries, with Ditch 18 seeing the most. While probably attesting to segmented construction, it is difficult to be certain whether many of these 'gaps' would have continued up to the level of the original ground surface or if local over-machining has obliterated their continuous upper profiles. Against this, as indicated on Figure 2.35 (A–D), there are what seem to be at least four entranceways into the field 'blocks' themselves. In

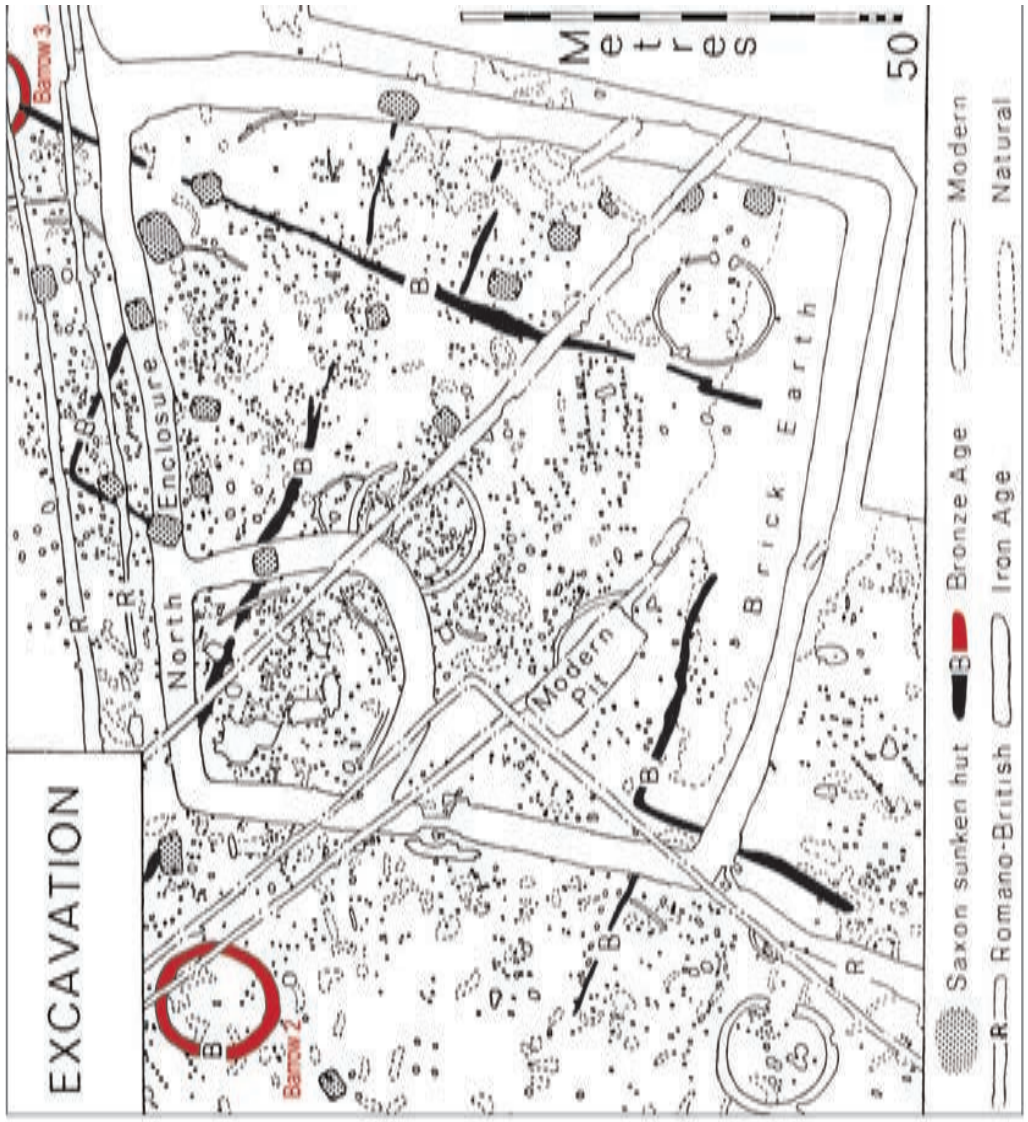


Figure 2.36. Early-vintage plans indicating Bronze Age fieldsystem: left, interim South & North Rings and fieldsystem plan (reworked from Jones & Bond 1980) and, right, barrows and fieldsystem in area of North Enclosure (modified from Riley 1987).

Figure 2.37. Arrangement of fieldsystem ditches in relationship to Barrow 3 (note the ambiguous/unascribed 'early' ditch system in grey-tone that was also indicated on 1980 interim plan; see Fig. 2.36).

the case of A, C and D this identification is due to their size (respectively, 8.1, 10.7 & 4.5m wide); the latter was marked by a large posthole/small pit at the end of one of its ditches and the same was also true of the smaller, Entranceway B (3.0m wide).

Not surprisingly, given the limited scale of its excavation, no evidence of the southward extension of this allotment was encountered during the 1955 Linford Quarry investigations (Barton 1962). A more positive result was, however, found in the course of the North Ring excavations. There, a boundary on the requisite alignment was dug in the southeast corner of the main site (No. 63, Fig. 1.9; Bond 1988, fig. 30). That this was not itself exposed within the intervening salvage area was probably due to deeper machining there. It nevertheless correlated with a series of cropmark boundaries and these appear to have included a northwest–southeast oriented droveway some 8.0m across. While this northern cropmark extension of the system was shown on the 1980 summary plan (Fig. 2.36), it was omitted from the main 1988 North Ring's volume plan for lack of 'hard' excavation evidence.

The dating of the system's layout is imprecise and its assignation is largely by default. Aside from the definite recovery of two Middle Bronze Age sherds from its fills, in the southern end its boundaries were truncated by the South Rings; in the north, though clearly respecting its mound, ditch-line Ditch 10 definitely post-dated Barrow 3. Having said that, and as further outlined in this chapter's final discussion, an alternative reading is also possible. Based on the

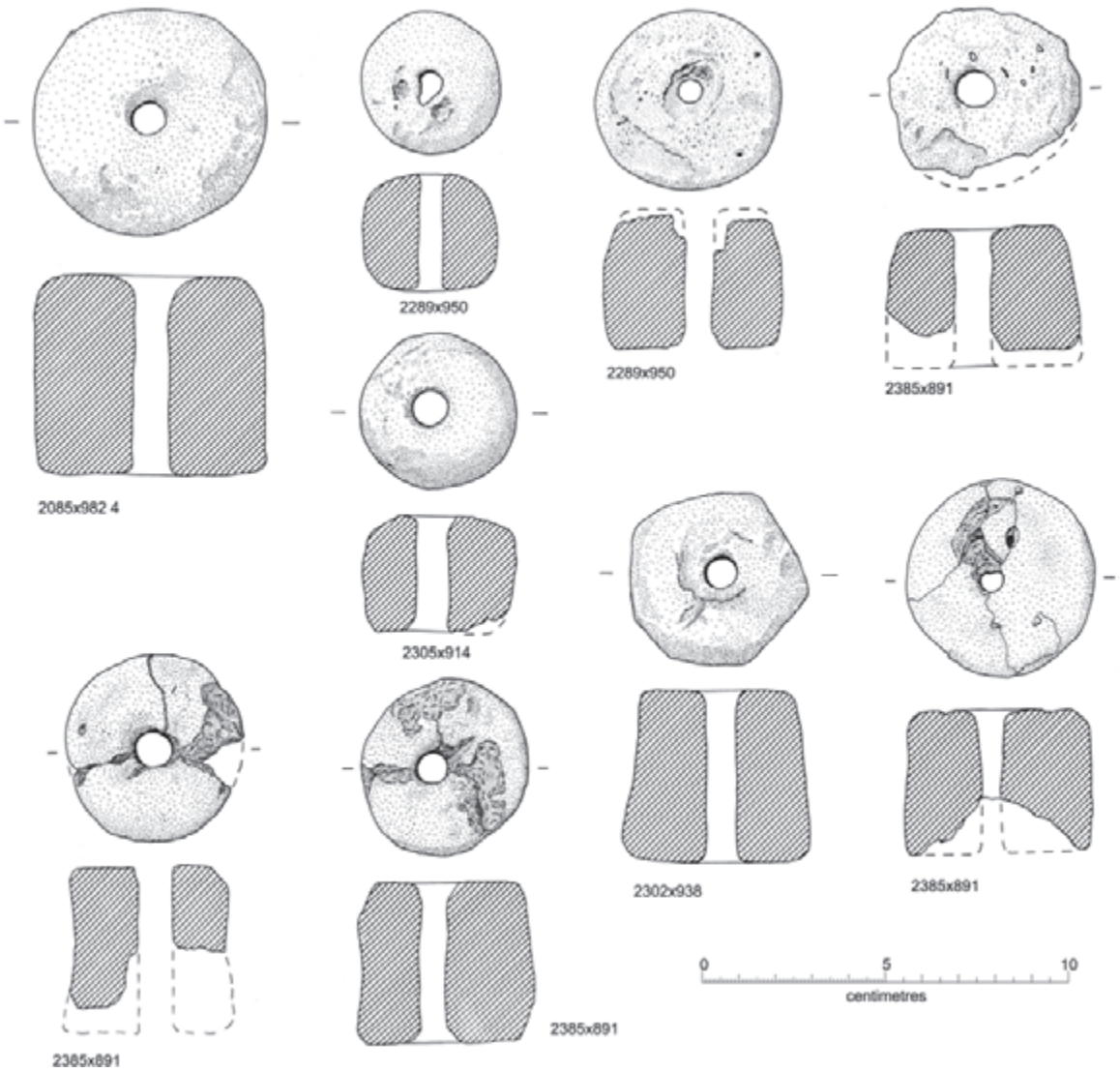


Figure 2.38. Cylindrical loomweights.

flattening of Barrow 3 in relationship to the double-ditches (BAD 14/15) and the fact that Ditch 12 appears to have continued across the line of Ditch 10, if accrediting the 10052 and 10122 boundaries to the system, then it is conceivable that the fieldsystem originally had a more parallel reeve-type, northwest–southeast boundary-dominated structure, with the 'block' layout then being later. If this was the case, then the primary-form fieldsystem may have been more integral with the monuments (i.e. in part contemporary).

Settlement and Other Features

A total of 46 pits and four postholes were assigned to the Middle Bronze Age. Thirty-three pits contained pottery only, 14 of which also had flint, with the remainder identified as this date during excavation and the MPX-phase. Generally steep-sided with concave bases, these ranged in size from 0.33m to 1.03m across (ave. 0.69m) and were 0.09–0.46m deep (ave. 0.32m). Most had two fills, with 15 having basal clay deposits; the status of such 'clay pits' will be discussed in the following chapter.

One pit included five cylindrical loomwieghts (2289N × 950E), where another two each had individual instances of the same (Fig. 2.38; see Fired Clay, Chap. 3 below); another pit included a saddle quern (see Buckley & Major, Chap. 3, below).

The majority of these features occurred within the site's northern quarter, within the main fieldsystem 'blocks' (Fig. 2.35). Although no structures could be definitely attributed to this period, two of these pits lay within the interior of Roundhouse 107 (see Figs. 3.7 & 3.8), although this was assigned to the Late Bronze Age during MPX. However, given the fact that a six-poster (PS92; 1.96 × 2.2m) was clearly aligned with the double-ditch boundary (BAD

14/15), this roundhouse is likely to have been of Middle Bronze Age date. Judging by the quantity of ceramics recovered (Fig. 2.35) and the density of worked flint within that area generally (see Fig. 2.3),[18] there can be little doubt that this area, at least, saw occupation. Within the North Field-area it correlates with comparable Late Bronze Age evidence (i.e. their features require 'disentanglement') and, accordingly, further scrutiny of the character of that area's usage will be presented in Chapter Three below.

Otherwise, Middle Bronze Age pottery was apparently found associated with Cremation 360 (649N × 577′6E). Other undated cremations may, however, have also been contemporary and this issue is further discussed in the following chapter.

Of the worked flint recovered from the Middle Bronze Age-assigned features, Elizabeth Healey notes:

> The lithics from the Middle Bronze Age pits were relatively prolific, although they are only found in six of the features ascribed to the Middle Bronze Age. Cores were found in two, with a series of flakes and several hammerstones suggesting that core reduction episodes are represented. Scrapers are by far the most common tool form occurring in all but one of the features. The two awls are not of particularly diagnostic type. The scrapers tend to be large, often on primary flakes, and to have minimal retouch forming a not particularly steep edge.

Pottery Nigel Brown

A total of 511 sherds, weighing 12.51kg, were examined. Given the large extent of the excavation and the nature of the post-excavation work, it is unlikely that all the Middle Bronze Age (MBA) pottery was recorded here; however, it is probable that all the substantial deposits from pits have been examined. Eighty-six per cent (by sherd count) of all feature sherds are illustrated (this total excludes bases which are only illustrated where they are part of reconstructable vessels; besides those illustrated six other bases were examined).

The pottery was recorded using a system devised for later prehistoric pottery in Essex. The fabrics present were:

A. Flint, S,2, well sorted
B. Flint, S-M,2
C. Flint, S-M with occasional L,2
D. Flint, S-L,2, poorly sorted
H. Sand,S2
N. Vegetable temper
Q. Flint S-L, Grog S-M,2
V. Flint S-M,1
Z. Unclassifiable

where size of inclusion is represented by:

S – less than 1mm diameter
M – 1-2mm diameter
L – more than 2mm diameter

and density of inclusions by:

1 = less than 6 per cm^2
2 = 6-10 per cm^2
3 = more than 10 per cm^2.

Rim forms present were:

1 Flat topped
3 Rounded
5 Expanded
6 T-shaped
9 Rounded, everted
12 Rounded with internal bevel.

MBA1 Form/rim-form: Bucket; 5. Straight-sided vessel with slightly inturned irregularly expanded rim with finger impressions on top; applied finger-impressed cordon and traces of finger wiping on exterior. Fabric C (2377N × 932E; Fig. 2.39.1).

MBA2 Form/rim-form: Bucket; 5. Straight-sided vessel with expanded rim, fingertip impressions on top; applied finger-impressed cordon and traces of sooting/black deposit around rim. Fabric D (2377N × 932E; Fig. 2.39.2).

MBA3 Form/rim-form: Jar; 1. Small ovoid jar with row of bosses above point of greatest width (about half the vessel is present); exterior smoothed/wiped to hide most of temper. Fabric B (2289N × 950E; Fig. 2.39.3).

MBA4 Form/rim-form: Tub, ?3. Small straight-sided vessel, about one third of the rim is present; the top of the vessel is abraded and it may be that what appears to be the rim may be a break, in which case the vessel would have been slightly taller with a slightly inturned rim and the row of pinched-up bosses being set on a high shoulder; finger-wiped exterior. Fabric D (2289N × 950E; Fig. 2.39.4).

MBA5 Form/rim-form: Bucket; 1. Rim of straight-sided vessel, fingernail impressions on top of rim and on exterior of vessel; row of pre-firing perforations below rim. Fabric D (2289N × 950E; Fig. 2.39.5).

MBA6 Form/rim-form: Bucket?; 6. Row of pre-firing perforations below rim. Fabric C (2289N × 950E; Fig. 2.39.6).

MBA7 Form/rim-form: Bucket?; 1. Row of pre-firing perforations below rim. Fabric C. (2289N × 950E; Fig. 2.39.7).

MBA8 Form/rim-form: ?; 3. Over-fired appearance. Fabric C (2342N × 942E; Fig. 2.39.8).

MBA9 Form/rim-form: ?; 6. Fabric C (2342N × 942E; Fig. 2.39.9).

MBA10 Form/rim-form: Bucket; ?. Large sherd of straight-sided vessel with applied finger-impressed cordon; part of a single, probably accidental, vertical grooved line survives and there is extensive cracking of surface around large flint grits. Fabric D (2342N × 942E; Fig. 2.39.10).

MBA11 Form/rim-form: Bucket?; 1. Finger impressions on top of rim. Fabric D. (2397N × 999E; Fig. 2.39.11).

MBA12 Form/rim-form: Bucket; 1. Finger impressions on top of rim. Fabric D (2377N × 932E; Fig. 2.39.12).

MBA13 Form/rim-form: Bucket; 6. Finger impressions on exterior. Fabric D (2377N × 932E; Fig. 2.39.13).

MBA14 Form/rim-form: 1. Slightly expanded rim, plain elongated lug. Fabric N (787N × 212E; Fig. 2.39.14).

MBA15 Form/rim-form: Bucket; 1. Rim with finger impressions on top, and base possibly from same vessel. Fabric D (2300N × 930E; Fig. 2.39.15).

MBA16 Form/rim-form: Tub; 1. Exterior? grass-wiped to hide most of temper (1583N × 715E; Fig. 2.39.16).

Figure 2.39. Middle Bronze Age pottery (I).

MBA17 Form/rim-form: Jar; 3. Part of small ovoid vessel, with pinched-up boss at widest point of vessel, presumably part of a row of such bosses; abraded interior (2224N × 887E; Fig. 2.39.17).

MBA18 Form/rim-form: Jar; 12. ? convex-sided jar with fingertip impressions on top of rim. Fabric C. (-8N × 326E; Fig. 2.39.18).

MBA19 Form/rim-form: Jar; 9. Smoothed surface. Fabric B (-8N × 326E; Fig. 2.39.19).

MBA20 Rim and form uncertain. Applied lug. Fabric C. (-8N × 326E; Fig. 2.39.20).

MBA21 Form/rim-form: Tub; 1. Row of ?applied bosses; abraded. Fabric V (Cremation 360; 649N × 576E; Fig. 2.39.22).

MBA22 Rim and form uncertain. Elongated applied boss, possibly from vessel of biconical form. Fabric C (1800N × 1042E; Fig. 2.39.21).

MBA23 Form/rim-form: Bucket?; 3. ?Biconical vessel with plain applied cordon and concave internal bevel below rim. Fabric B (1929N × 1021E; Fig. 2.40.26).

MBA24 Form/rim-form: Bucket?; 1. Finger impression on top of rim and on exterior below rim. Fabric C (2447N × 974E; Fig. 2.39.23).

MBA25 Form/rim-form: ?; 3. Part of ?arc handle survives on exterior. Fabric C (1926N × 1032E; Fig. 2.39.24).

MBA26 Form/rim-form: Bucket; 1. Lug level with rim. Fabric D (2392N × 440E; Fig. 2.40.27).

MBA27 Form/rim-form: Bucket; 3. No further description. Fabric C (2392N × 940E; Fig. 2.39.25).

MBA28 Form/rim-form: Bucket; ?. Applied finger-impressed cordon. Fabric C (2392N × 940E; Fig. 2.40.28).

MBA29 Form/rim-form: Bucket; ?. Applied slashed cordon, part missing. Fabric C (2392N × 940E; Fig. 2.40.29).

MBA30 Form/rim-form: Bucket; ? Fingernail impressions on exterior. Fabric D (2302N × 938E; Fig. 2.40.30).

MBA31 Form/rim-form: Bucket; 6. Row of pre-firing perforations below rim. Fabric D. Barrow 5 (2276N × 1021E; Fig. 2.40.31).

MBA32 Rim and form uncertain. Part of collar of Collared Urn decorated with opposed diagonal grooved lines. Fabric Q (Barrow 5; 2276N × 1021E; Fig. 2.40.32).

The earliest pottery is represented by a sherd from the lower ditch silts of Barrow 5 (MBA32), which appears to be part of the collar of a Collared Urn. Its grog-tempered fabric would fit such an attribution, although the presence of a few flint grits is unusual (Longworth 1984, 4). Occurrence of Deverel Rimbury pottery (MBA31) from higher in the ditch silts may indicate that the barrow remained a focus of activity for some time. The vessel with a concave internal rim bevel and plain cordon (MBA23) may be from a biconical urn. The elongated horizontal lug (MBA22) might derive from a vessel of biconical form and can be paralleled by sherds from a ring-ditch at Orsett, Barrington's Farm (Brown 1987). Similarly, part of a small applied arc below the rim of MBA25 may be better paralleled by the applied arcs on biconical urns, than by the 'horseshoe handles' on some Deverel Rimbury vessels, particularly among the Ardleigh Group (Erith & Longworth 1960; Couchman 1975). Barrett (1973) regarded the biconical urn tradition as an element in the development of Deverel Rimbury ceramics in the Middlesex and Middle Thames area, whilst Ellison saw biconical vessels, of her Lower Thames Group Type 5 (1975), as a late development in the local Deverel Rimbury tradition, without any close relationships with the biconical urn series. The Mucking sherds with biconical urn affinities and the material from the Orsett ring-ditch, which can be paralleled with the biconical urn sherds from pits within the east end of the Springfield Cursus (Buckley *et al.* 2001), may indicate that the early stages of Deverel Rimbury ceramics in the Thames Estuary area were, in part, a development of the biconical urn tradition. The majority of the remaining pottery from Mucking examined here is of Deverel Rimbury character. Most of the sherds are derived from more or less straight-sided vessels of bucket form. Decorative features comprise finger impressions on top of rims (e.g. MBA2 & 12), occasionally also the exterior of rims (MBA24) and applied finger-impressed cordons (MBA10 & 13). One cordon has slashed decoration (MBA29) that can be matched at Shoebury (Colchester Museum Accessesion No. 2030.70, unpublished), Ardleigh Ring III (Couchman 1975) and Grimes Graves (Longworth 1981; Ellison 1988, 47). There are also a number of sherds with pre-firing perforations below the rim (e.g. MBA6 & 7). The necked sherd is from a vessel less common in Deverel Rimbury assemblages, but may be paralleled at Shoebury (Colchester Museum Accession No. 840 1904.4, unpublished) and Grimes Graves (Longworth 1981, fig. 30 P200; Ellison 1988, 37).

Small tubs, such as Figure 2.39.16, commonly occur in Deverel Rimbury contexts. Similarly, the small bossed vessels are frequently found in Deverel Rimbury assemblages in Essex (e.g. Brown 1984–5a) and elsewhere (Ellison 1988, 47). The sherd of a large straight-walled vessel with a lug set level with the rim is unusual. The fabrics are predominately flint-tempered (Fig. 2.41) as is typical of Deverel Rimbury pottery, although such assemblages in Essex, as elsewhere, frequently include some flint and grog-tempered, grog-tempered and largely temperless fabrics.

One of the Mucking groups (-8N × 326E) may represent a late stage in the development of Deverel Rimbury ceramics. The small jar, MBA 19, can clearly be paralleled in post-Deverel Rimbury assemblages. The rim of a large convex-sided or barrel-shaped vessel might also be appropriate to a post-Deverel Rimbury pot, the form and finger-impressed rim reflecting its origins in the Deverel Rimbury tradition, in the manner suggested for pottery from Broads Green (Brown 1988a). The dating is problematic as only three radiocarbon dates associated with Deverel Rimbury pottery are available from Essex: Barling (Couchman 1977, Eddy & Priddy 1981) in the southeast, yielded a date of 1335±85 bc (BM-1631)/1680–1500, 1475–1460 BC calibrated; Braintree (Couchman 1977; Eddy & Priddy 1981), in north-central Essex, yielded a date of 825±356 bc (BM-1632)/985–900 BC calibrated. These two dates mark the beginning and end of the period during which Deverel Rimbury pottery is likely to have been current. Unfortunately, both were affected by the problems with the second liquid scintillation counter at the British Museum

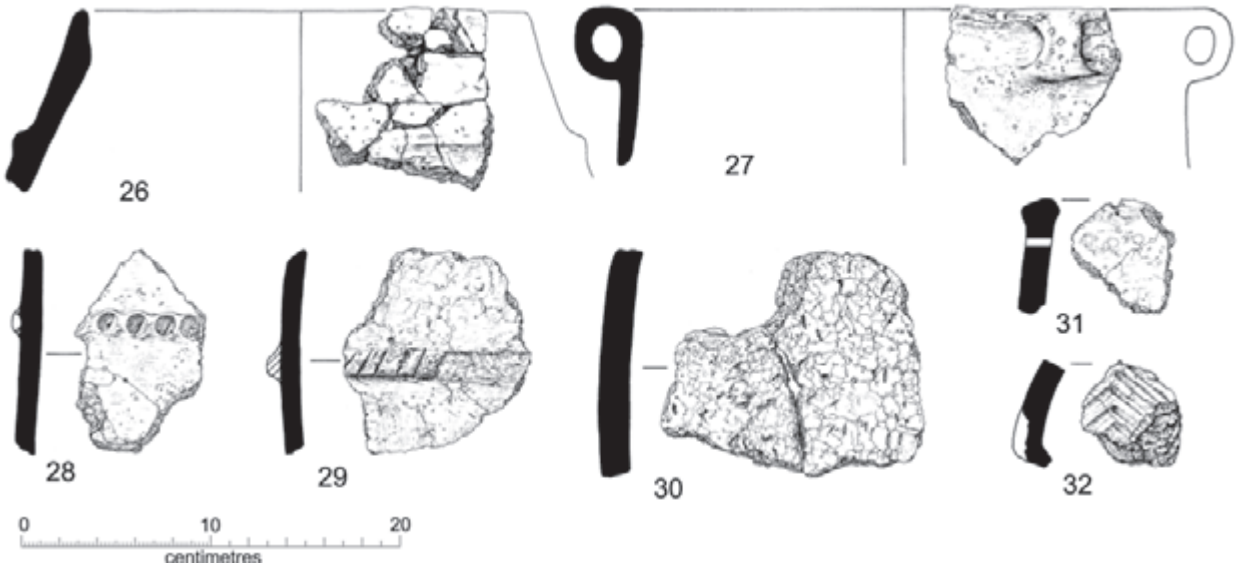


Figure 2.40. Middle Bronze Age pottery (II).

Laboratory. As there was no independent check of counting efficiency available for the first seven months of 1980, it is impossible to obtain revised results. All that can be said is that the two dates are likely to be too young by an amount between zero and 250 radiocarbon years. The third date is from Rook Hall (Adkins & Brown 1984–5) near the Blackwater Estuary: 1020±906 bp (HAR-6397). The Mucking pottery could cover a wide span in the second half of the second millennium BC, the latest material (MBA19 & 20) with post-Deverel Rimbury affinities dating from about 1000 BC. Given the large assemblage of post-Deverel Rimbury pottery from Mucking, and its frequent occurrence elsewhere in South Essex, it seems likely that Deverel Rimbury pottery in the Thames Estuary-area does not continue into the first millennium BC, as Barrett (1980) suggests.

The measurable rim diameters of the Mucking material (Fig. 2.42) seem to follow the threefold division of vessel-size noted by Ellison (1988, 49) in a number of other MBA Deverel Rimbury assemblages. Some of the Mucking pottery appears to derive from deliberate deposits. The large parts of two small bossed vessels from 25538 (2289N × 950E; MBA3 & 4) seem to have been deliberately placed. Such vessels seem to have been frequently employed in ritual deposits. The vessel from Harlow (Brown 1984–5a) associated with a small tub appears to have been a deliberate deposit. At North Shoebury (Wymer & Brown 1995), a small shallow pit within the settlement was almost entirely filled by part of a bucket urn, broken into large sherds and laid flat, together with about half a small bossed pot. Another small bossed vessel was recovered, complete and upright, in a small pit some distance north of the settlement at North Shoebury. The small tub from Mucking Context 6321 (1583N × 715E; MBA16), associated with a loomweight, may also have been a deliberate deposit.

Deverel Rimbury pottery has been divided into a number of regional groups (Ellison 1975 & 1980, 129). The Mucking pottery has been ascribed to the Ardleigh Group (Jones & Bond 1980; Priddy 1981), and the Ardleigh Group has been seen as incorporating the whole of south Essex as well as northeast Essex and southwest Suffolk (Couchman 1980, 42; Lawson 1984, 161). The original publication of the Ardleigh cemetery defined the Ardleigh Group as centred in northeast Essex and southeast Suffolk (Erith & Longworth 1960) with outliers in south Essex, particularly at Shoebury.[19] Ellison's (1975) definition of a Lower Thames Group excluded south Essex, although her suggestion that the radiocarbon date from Barling may support an early date for Ardleigh pottery (Ellison 1988) indicates that the pottery from south Essex is regarded as part of the Ardleigh Group.

A considerable body of Deverel Rimbury pottery was recovered from a number of sites in the Southchurch and Shoebury areas of southeast Essex during Brickearth extraction in the late nineteenth and early twentieth centuries. Examination of all this material, now held in Southend and Colchester Museums, shows that the most distinctive traits of the Ardleigh Group, horseshoe handles and extensive fingertip rustication, though present, are very rare. This is borne out by the Deverel Rimbury assemblage from the settlement site at North Shoebury, excavated by Southend Museum in 1971–2 and Essex County Council in 1980 (Wymer & Brown 1995). Ellison's (1988) distribution maps mask the differences between the Ardleigh Group and the pottery from south Essex. This is even more true of the table in its Appendix 1 (*ibid.*), where the old finds from Shoebury are represented only by the material in Colchester Museum: only two traits, horseshoe handles and rustication, are marked as present. In fact, the Colchester Museum and Shoebury collections contain seven other traits covered by the table, but not noted as present, together with a number of plain rims.

It seems best to regard the Deverel Rimbury pottery of south Essex as distinct from the Ardleigh Group; it may be part of Ellison's (1975)

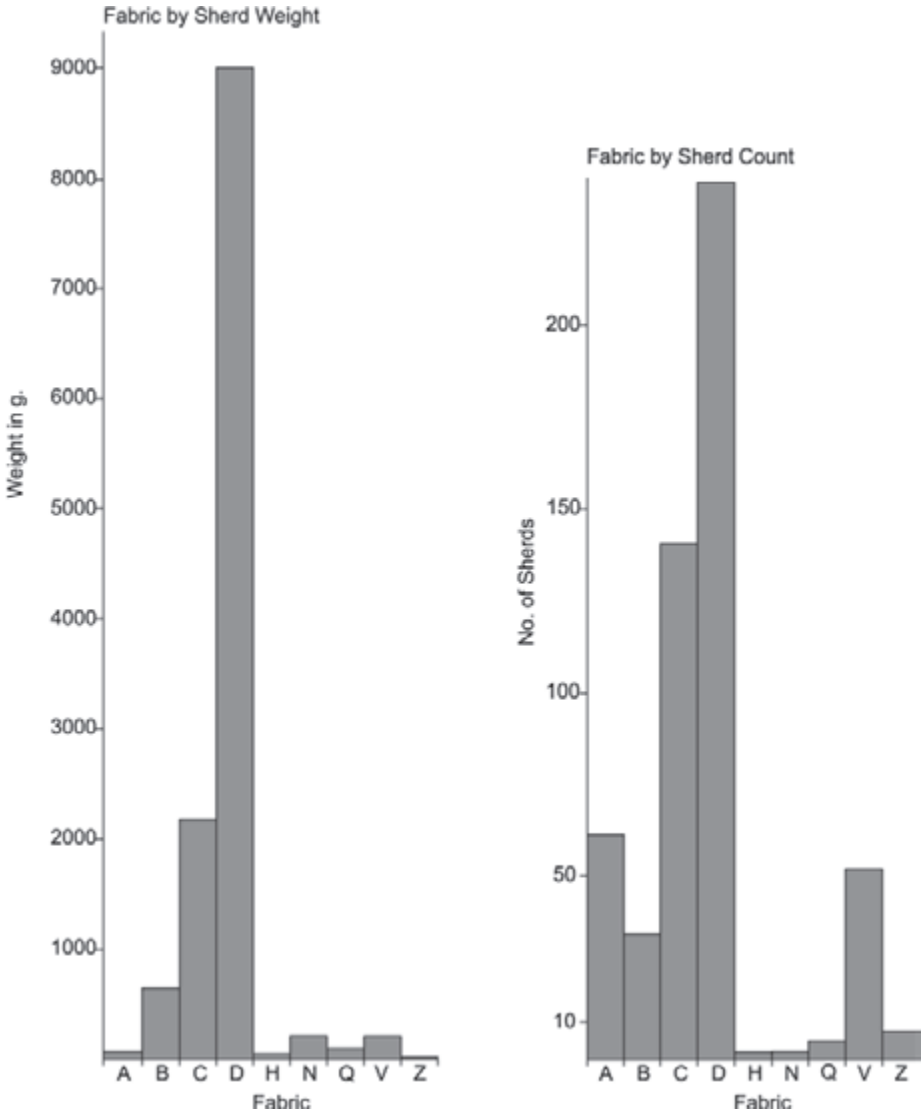


Figure 2.41. Frequency of Middle Bronze Age pottery fabrics by sherd weight and count.

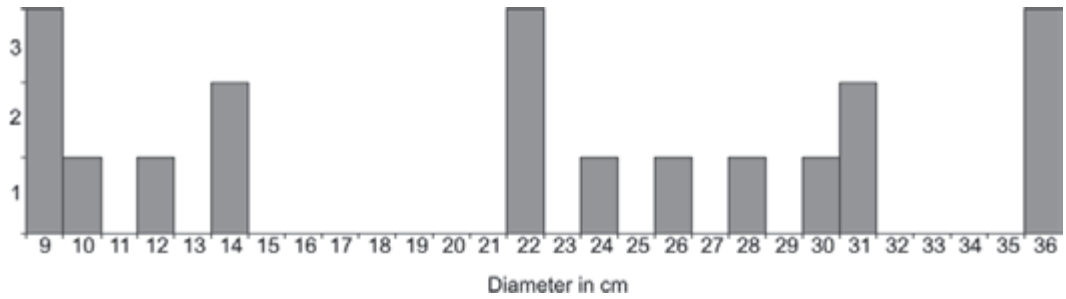


Figure 2.42. Frequency of Middle Bronze Age rim diameters.

Lower Thames Group. Ellison noted the lack of a clear-cut fine vessel-type in the Lower Thames Group. It may be that the stamp-decorated bowl from Birchington (Powell-Cotton & Crawford 1924; O'Connor 1980), sherds of two or three similar vessels from the North Shoebury settlement (Brown 1984-5b; 1995), and a stamp-decorated vessel from Sipson's Lane, Middlesex (Cotton *et al.* 1986, 44) fill this gap.

Recollections (I) – *Fieldwork*

In an effort to further provide a sense of time, place and 'event' – but falling well short of any kind of 'official' oral record – recollections were variously solicited from project participants. This is highly selective and certainly does not aspire to be representative; by the reckoning of the estimated total site staff over the years of the project, the reminiscences of thousands more must be missing.

Here we will only include those relating to fieldwork proper (see Chap. 4 for post-excavation), and begin with extracts from a journalist's account of an obviously trying overnight stay at the site that featured in *Punch* (30/06/76):

Tina Brown

Under the direction of the splendid Margaret Jones, Mucking Excavation, Essex, is a particularly purposeful outfit, racing as they are against the advancing maws of the gravel-quarrying machines. Judged by the flushed, sardonic faces of the drivers, the archaeological Fruitcake scrabbling about in the adjacent dust add a special piquancy to their otherwise routine desecration.

Unlike the softer options of the London digs where brisk skeleton washing near Blow Bladder Lane can be interspersed with sorties to Newgate bars and shopping centres, Mucking is no holiday camp. Mrs Jones has devised a stunningly repulsive application form to weed out the loafers. Aswan in 1911 is rather the picture it represents of camp life. *"Alight East Tilbury. Walk North 1 ½ miles… Bring Sleeping Bag, Tent, (Flysheet is advised) Electric Torch (no lights)… waterproof boots, gloves, scarf and cap… There are two laundrettes two miles away… It MAY be possible to obtain free supplies of soap and detergent from a local factory. It is an outdoor camp with minimum equipment. There IS piped cold water serving outdoor wash places and chemical sanitation."*…

I arrived at Mucking in a temperature of 80° F with kit bag bulging with Flytox, footpowder, Band Aid cornplasters and knee pads. The twenty diggers, a cross between the Desert Rats and the Bloomsbury Group on a walking holiday, were sprawled on the grass enjoying a tea-break. A genial, shaggy-haired young woman who turned out to be Cook escorted me to a caravan. "It's great fun," she enthused as we travelled ditches and skidded down heaps of rubble. "But you can understand how the Manson Club got they way they did. Apart from Heavy Rock in Mucking on Thursday's there's not much in the way of night life."

Margaret Jones, a brisk figure with windburnt face and peppery blonde hair, strode out and hailed me. In a flash I was on a tour of the site where she had been camping out for almost ten years since the first aerial photos of cropmarks hinted at a large Iron Age settlement.

Over a thousand amateur archaeologists have dug the site – the turnover unsurprisingly rapid. Mrs Jones nightly task is casing the new application forms sent by vacationing students, actors between jobs, dole collectors on holiday from unemployment and archaeology students desperate or dedicated enough to work for £12 per week. …

Supper was an alfresco affair served on school tables and eaten, at my end, in discomforting silence broken only by an American Mormon with a remorseless thirst for knowledge. "The might be a terrible thing to ask, Margaret, but what is the solid evidence for the re-cuts being Roman?" "*Do* eat your crumble, Packard," countered Mrs Jones smoothly. …

I was not at my best at the dig. The post-hole gave me trowelers' wrist, *the Grubenhaus* gave me Hausfrau's knee. My Bronze Age finds were dismissed as early Ginger Beer Bottle, while another digger's charred clinker was hailed with excitement as a Saxon spearhead. By lunchtime, I suddenly realised that importance of gravel and the public spirit of the quarrymen.

Jonathan Catton

I dug at Mucking from 1965 through to the end, and participated in its Post-Excavation first phase at Thurrock Museum. Started as a nine year-old local school boy and slowly came up the ranks – weekend digger, excavator, special supervisor and finally assistant to the director – and concluded with recording the prehistoric pottery series. As I grew up with Margaret, Tom and Reject (the site dog) I perhaps did not see the quirkiness of their characters. Margaret was always full of energy and thought, and controlled everything on site with the Mucking way of excavation and organised the diggers camp as well! Tom was a lightweight; Reject went where the food was: Margaret's caravan, then on to the gravel works for more!

Plenty of memories, specially the international diggers: Czechoslovakians, Polish, Dutch and a few German and Americans. The digging was not bad either, including discovering the largest slag bloom on the site and working on the aptly classical nameology that Margaret introduced to the site – a huge pit/small quarry called the 'enigma'! I got into serious trouble at school when I described the Enigma Variations to be a hole in the ground to my music teacher!

It all seems like a great adventure now, but I'm happy to wear the Red Badge of Mucking/Courage! Now the Heritage & Museum officer of Thurrock, I'm very proud to tell the local community about the Mucking dig and keeping it alive!

Warwick Rodwell

In the 1960s, when I was running rescue excavations in Essex, I used to take my diggers for an evening outing to Mucking. Margaret reciprocated and brought hers to see my sites: that was what we called a 'treat' in those

days. In the autumn of 1968, a group of Roman pottery kilns turned up at Mucking, just as the students were leaving to return to university, and the quarry would engulf them before the spring. Two timber-lined Roman wells had recently been lost, although their waterlogged shafts were still visible in the quarry bottom.

I was an avid Romanist, and Margaret asked if I would join her, to rescue the kilns and wells over the winter, which I did, along with my first wife, Kirsty. We dug until dark on Christmas Eve, and resumed again a few days later. It was bitterly cold, and we burnt bales of straw on the kilns to thaw the ground; otherwise, trowels would not scratch the surface, and pick-axes simply bounced off. It was not only cold but also dark, and I suggested bringing an electricity supply to site – being a part-time electrician, I found myself lumbered.

Catering was provided on site – we were miles from a shop – and in the summer we had crates of bananas, but Margaret would not buy them in the winter because she said they would get frosted. And she could not tolerate waste (there was a box in the supervisors' hut, labelled 'Pieces of string too short to be of any use'). We argued furiously about the bananas, and she challenged me to eat a crate before the frost got them. That is the only time in my life that I have consumed 40lbs of bananas in a week! Mucking was a tremendous experience, but perhaps not one to be repeated.

Bob Carr

Easter 1967 for six weeks: it was so cold I don't think anyone did much digging, I don't remember ever seeing Margaret, Tom, or the supervisors on site. I suppose I'd gone there because of the Saxon connections, but the

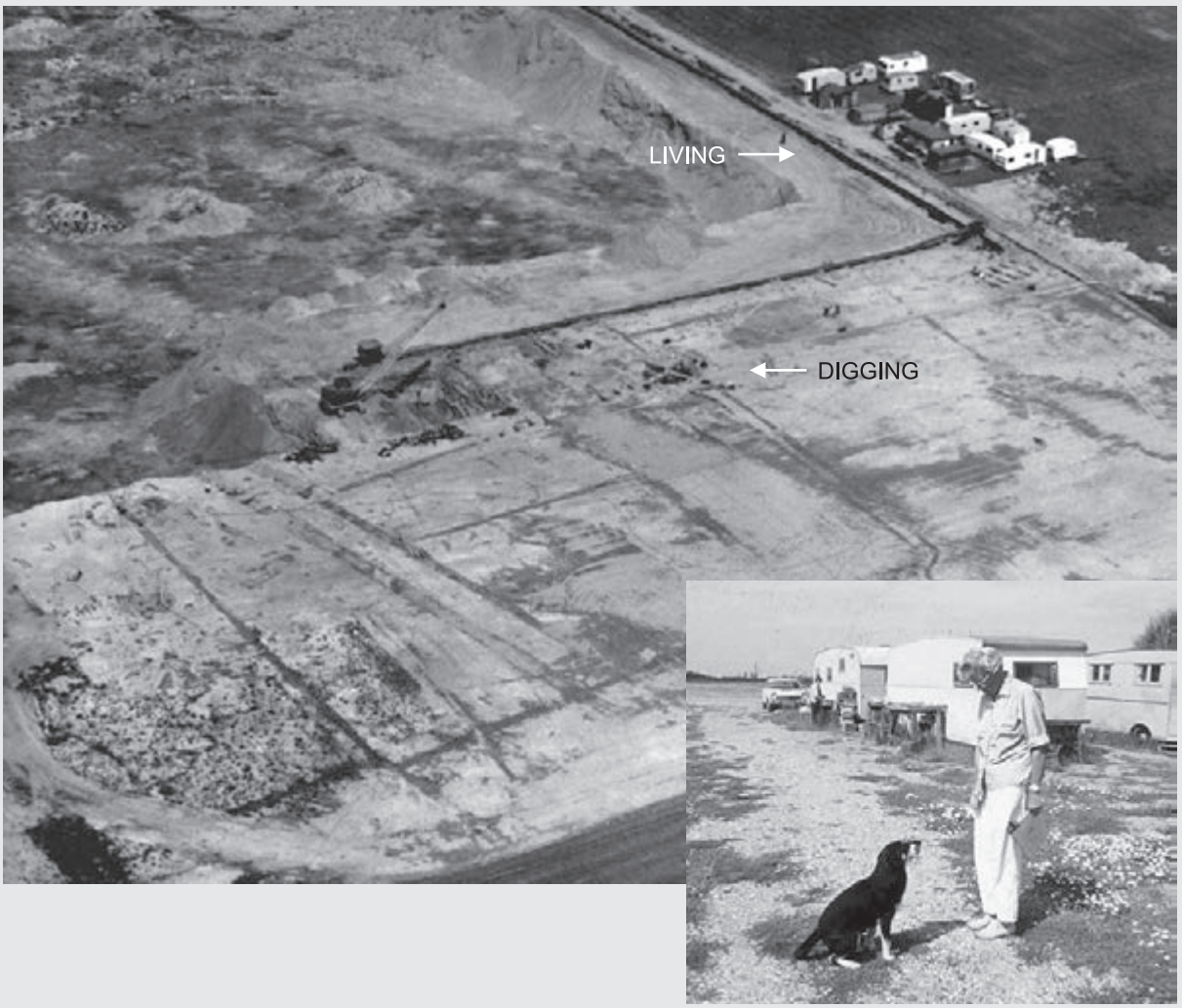


Figure 2.43. 1973 aerial photograph showing progress of drag-line extraction across the area of the Double Ditch Enclosure, with excavation still occurring immediately before; perched alongside the quarry-edge, note the excavation campsite (Southend Air Photography Ltd.); inset, Margaret and Reject at the excavation campsite (photograph supplied by S. Elsdon).

cemetery was mostly done and they weren't on the village area at the time, so I only remember endless Roman ditch-fill. I spent at least two weeks building an enormous communal dining and cooking shed with Darryl Fowler. Margaret got all the food wholesale, so bananas came in crates; someone had brought in an *Evening News* which claimed that the inside fuzz from banana skins was an hallucinogenic: mass consumption (individual record of 21 in a night), drying and smoking had horrific alimentary, but no perceptible mind-altering effects. Then there was Dafydd Kidd living in a polystyrene lined *Grubenhaus* pit he'd dug beneath his tent. What was the name of the pub where the whisky seemed to stave off food poisoning?

Francis Pryor

I dug for about three weeks at Mucking in December and January 1965/6. At the time I was an undergraduate in my second year reading Arch. and Anth. at Trinity. The late Tim Potter had rooms not far from mine in Great Court. We were both broke – we usually were – and one day Tim asked if I'd join him at Mucking to earn a few bob. We shared a ghastly B-and-B in Southend (it cost us ten shillings/50p a night) and when the people in the next door room were sick at night and missed the toilet bowl, their vomit flowed into our room *via* the half-inch gap beneath the hardboard walls. It was, as I said, grim. If the accommodation was bad, my introduction to site life was – how can I put it? – austere. It was a bitterly cold day, and the foggy air stank of petrochemicals from the nearby refinery. Tim gave me a quick site tour: acres of gravel, Roman graves, Iron Age roundhouses, *etc*. Then a call came from Margaret Jones. It was time for tea break. She and Tom were waiting in the main site hut. Tim and I approached. He went in first. I followed, but as soon as I entered was told by Margaret that this hut was for site supervisors only. So I had to spend my lunch and tea breaks in the diggers hut – which would have been fine had there been any other diggers. Happy days!

Adrian Olivier

Memories of Mucking seared on my brain by the ever-present arctic wind driving up the Thames Estuary along the gravel terrace, blasting the site with a ferocity that had to be experienced to be believed. In 1968/69, between leaving school and going to university, I spent 18 months on the circuit learning the trade of digging at a variety of different sites and contexts. The choice in November and December was very limited – in fact I seem to remember, non-existent – which is how I followed the well beaten path to Mucking.

The permanent site population that winter was very small – Margaret and Tom Jones (and the ever-present, Reject), Warwick and Kirsty Rodwell, Paul Drury, and myself, augmented at weekends by locals. Margaret and Tom and Warwick and Kirsty lived in caravans, Paul I think stayed at home in Chelmsford, and I slept on the floor of the finds hut; needless to say no heating and lighting, and – in the tradition of all finds huts – extremely well ventilated!

Conditions were primitive to say the least – chipping the ice off the water barrel in the morning to wash; I remember Warwick's banana fest, and the crate of tins of pressed cod roe that we had to work our way through endlessly – where and how did Tom acquire the rather eclectic mix of bulk foodstuffs (which always seemed to involve a trip to Tilbury docks) – probably better not to know!?

The work was dour and hard – trowelling frozen gravel made me yearn for the sands of Dragonby with the longing and passion of an unrequited lover – but I added skills and experience to my archaeological repertoire which I couldn't have acquired anywhere else at that time. I remember passionate and heated arguments between Margaret and Tom about the interpretation of features, being taught unsuccessfully by Tom to dowse for Saxon graves, and being given the latitude by Margaret to think for myself about what I was doing.

Margaret could be a hard taskmaster, and working for her was certainly challenging at times, but in subsequent years, as my career developed, and our paths crossed on a number of occasions, she was, as she was with so many of those who were tempered by the experience of the Mucking permafrost, always extremely encouraging and generous in her support, and, I think rather proud of how many of this generation of British archaeologists passed through her hands. I for one will always be grateful for the experience, even if on occasion I can still feel the indelible cold of 1968 penetrate every fibre of my being!

Catherine Hills

I was at Mucking in 1967, during my first Easter Vacation of a university degree. I went for only a week and I think that I left through genuine illness. I can't remember where I lived, but some people, like Dafydd Kidd, had been there all winter, in dugouts lined with polystyrene sheets (no doubt surplus offcuts), but I do remember the grimness of all of it. Of the food, Margaret bought as cheaply as possible, and had army surplus cheese or army surplus porridge or something. Vast great mountains of whatever – cheese or spam – tasteless and horrible. Some years later, in the 1970s, I had diggers at Spong Hill who'd been at Mucking. They told of how the food was still dreadful, particularly a tale of a nauseous egg pie to which they gave a ceremonial burial; they had all marched along, chanting, "Egg pie, egg pie".

During my week I remember sitting in a *Grubenhaus*, and fishing out with a teaspoon what were purported to be stake-holes, but I thought they were just root-holes. It was quite a mild activity, although not warming enough in the freezing cold Easter, and Tom Jones used to come and sit on the edge of the *Grubenhaus* and chat, which was fine by me, but Margaret was always calling "TOM, TOM, COME HERE AT ONCE". When I was a PhD

student, a few years later, I visited the Mucking post-excavation office – I think I was looking at stamped pottery – and was told by Margaret that PhD students were a waste of time. I don't think I changed her mind.

They had a dog called Reject, I think he was called Reject because he was an abandoned puppy, but also I am afraid, I think it was because he had bouts of vomiting, was not very attractive and there was the general feeling that poor Reject had been rejected by everybody, including the rest of the dig. But at least he was providing some focus of warmth and canine comfort to the Joneses.

As to field-staff, many Polish archaeologists came out to England before the Berlin Wall fell; they came to dig and sometimes they stayed. We had a team at Spong Hill, which was led by Jerzy Gassowksi, a Warsaw archaeologist – who I believe is still alive in his 80s – and I recently heard that he had written a book claiming that he had directed the excavations at Spong Hill and that they had demonstrated that the Anglo-Saxons were Slavonic, which was rather a surprise to me. Certainly I had Polish diggers at Spong who had also worked at Mucking, who told stories of the grim environment, although perhaps it seemed more like home to them, a sort of a grim Soviet-style experience.

Ian and Barbara Kinnes

Back in England after a bizarre '30s-style tell excavation in the Zagros and a permafrost-strict experience on some Roman nonsense at Xanten, all that was on offer in Jan. 1968 was a multi-period 'palimpsest' at Mucking. It was unsettling, bleak in setting, living conditions and food. There was some consolation each evening in an unwelcoming pub down the hill. Margaret was extraordinary (well worth a biography) and Tom simply furtive. The scale of operations was beyond them – and us – clearly also for the finance and vision of the MoW. Outside professionals rarely visited and such interest as there was was only engendered by goodies from the Saxon cemeteries and the then-rare *Grubenhäuser*. At that point nobody in Britain knew how to cope with the grand-scale and Margaret did as well as anyone, if only by sheer perseverance.

There are many stories: the hierarchy of Hut A, Hut B and volunteers; the staff treated occasionally to astonishingly vile sherry in carefully conserved yogurt pots; a supposed new means of enhancement of the 'sand bodies' after dark only demonstrating the luminosity of Tom's socks through holes in his boots; a chemical spray designed to enhance relative phosphate levels which, tested on the camp-site, provided a bright crescent outside male tents and so on (see my forthcoming memoirs). Margaret believed that staff status should carry further responsibilities; I was appointed fire officer and had my red-painted bucket of sand – in the middle of a gravel quarry – and also i/c Elsan-emptying, a major opportunity for bribery and favouritism which I, of course, resisted. But I did meet Barbara and we married six months later. We still wonder about it – the excavation I mean.

(Barbara) As well as being there in early 1967 I had done two stints in 1966, the first in the summer, when, along with the late Tim Potter I was a site supervisor. The site was just proving that it was not as predicted from the APs and the first *Grubenhäuser* were emerging. It was a long hot summer and one remembers moments: Tom crouching over a section recording his impressions into some mini-tape recorder he had just acquired;[20] Margaret looking contemptuously at a meticulous section Tim was recording and remarking, 'the Ministry draughtsmen can draw those stones in later'. I was back briefly in December, as by then I was doing work on the site for my MPhil. It was cold and dark, but Tom and Margaret were battling on, living in the caravan and with hardly any other help or even visitors. One had to admire their stamina! I had to sleep down on the camp-site, alone in the hut, and the mad axe murderer was on the loose. I didn't relish the dark walk either, but we were more stoic in those days!

Dave Buckley

I never actually worked at Mucking, but did have an opportunity in the late 1960s when a letter out of the blue asked if I would like to join the excavation. This was not a special selection, I was just one of the hundreds of itinerant diggers, students and others contacted by Margaret after she had obtained their details. Having just accepted a site job elsewhere I could not go and, given the horror stories about conditions at Mucking (e.g. no day off even for Christmas Day), felt happy not to have done so. After moving to work in Essex in 1974 I had to visit the excavations and the stories seemed well founded. The Thurrock landscape appeared desolate with hedgerows largely devoid of trees thanks to Dutch elm disease, the former fields around Mucking mostly active quarry or abandoned workings used for landfill and with nothing to stop a seemingly constant biting wind from Europe. Margaret gave a site tour in her usual severe and questioning manner, followed by a mug of tea in one of the collections of old caravans which were home to all on site. However, frequent future contact established only admiration for what Margaret had managed to achieve on a shoe-string in order to record the exceptional archaeology of Mucking. Her reputation came from a determination to obtain help and support from anyone who would listen, but balanced by a generous nature and ever ready to give of her knowledge and time.

Tim Schadla-Hall

I went to Mucking in the summer of 1966. It was my first big excavation – I applied to be a site assistant – as I had a fair amount of experience as both a surveyor and as an excavator and planner on mainly Bronze

Figure 2.44. Site living and working close-up: Mike Pitts' 1972 site photographs (note the proximity of the excavation front to the conveyor belt/drag-line – with Tom Jones lower left – and, below right, Margaret at tea).

Age sites in Yorkshire and was accepted. I knew it was a big rescue excavation and was in the process of applying to Cambridge after that summer. I was met at Stanford-le-Hope railway station by Tim Potter (in his old Ford Popular) who I had never met before; he told me I couldn't be called Tim as he was! So we reverted to my childhood nickname of Chad. The site was huge – I was assigned to work for Tom Jones – and I realised early on that the accuracy of large parts of the grid was dubious – the site area was at least a third of a mile, and I spent some time trying to get it straighter and more accurate. I seem to recall that the campsite was run by JCOs (joint camp organisers) and that the staff – of which I was a junior member – didn't have to be involved in elsan-emptying or cooking, *etc*. We used to hold regular staff meetings in Margaret Jones' hut. On reflection, I realise that to run the excavation – all aspects of it – was a considerable undertaking as there were over 80 people on the site. The quarry was working at full tilt and the finds just kept on coming in. There were about 15 of us on the staff. Tim Potter supervised a large area and so did Barbara Thomas (aka Kinnes) who was busy excavating a series of what we were calling *Grubenhäuser*, as the full-scale of the Anglo-Saxon settlement was slowly emerging. I had an enjoyable time as the weather was good that summer, and there was an active social life in the campsite. We used to get showers in the local Bata shoe factory: which were needed! Every supervisor was responsible for drawing, e*tc*. and planning and keeping site notebooks – I recall that I was never told what to write or, indeed, if there was any particular standard that needed to be adhered to – and planning was still on imperial measurements. I went back to Mucking that December. It was gloomy and miserable – and really cold – for reasons I cannot recall I agreed to spend Christmas day on the site, I think that Margaret was concerned about either planning permission or insurance – I suppose that four big sheds and about 15 elsan sheds, *etc*. and equipment were a problem! Before Christmas, Dafydd Kidd and I shared a hut. It was so cold that we slept under layers of blankets; it was bit like the interior of a Scott of the Antarctic hut. In the daytime we dug – Kidd was working on the finds from the Anglo-Saxon cemetery – and I saw a claw beaker for the first time! We didn't get much work done because it was so miserable – and after that Christmas I never went back!

Alison Taylor

Mucking in Easter 1967 was constantly cold, and I have abiding memories of trowelling as hail beat down upon bare hands, with chilblains on fingers as well as toes. It would have been OK if we could work energetically, but everything had to be so meticulous. We got into trouble for emptying hand-shovels straight into buckets and then the spoil heaps, when *Grubenhaus*-fill had to go through sieves, and I remember with shame how Bob Carr and I found an infant cremation in the wheelbarrow after we had used a pick-axe rather than trowel on a baulk (but at least we found it, whereas most of those levels were machined away). Standards might be set high, but as all supervisors were in huts a long away across the quarry, the 'vols' may well be driven to short cuts. Tom and Margaret fed us well, we normally managed to find pubs that would still admit us, and camping in huts and tents heated by candles was cosy, but the bleakness of that Mucking landscape and incomprehensible archaeology in a massive quarry should have defeated us all – it's amazing how many actually remained in archaeology.

Paul Drury

I began digging as a weekend volunteer at Mucking around 1968, when I was articled in the old fashioned way to a firm of Chartered Surveyors in Southend. As soon as I qualified I left to dig full time, through a bitter winter, intending to get some serious practical experience. One abiding memory is of breaking up the frozen crust of features into slabs and setting it aside to 'excavate' if and when it thawed out. Another, of sleeping in a hut with the Joneses' adopted discarded dog, Reject, in the corner. One night, woken by barking and commotion, the torch revealed Reject chasing a rat round and round the hut – over my sleeping bag. With the light, the rat found its exit and calm returned. The rats from the refuse dump across the lane would even devour soap.

Mike Pitts

I had the best part of a year after I left school before starting at university in 1972, and having decided to study archaeology (at the Institute in London), I wrote to a few archaeologists I'd heard of for ideas as to what I might do? I think it was Barry Cunliffe who suggested I get some digging experience. This sounded fun, so armed with my muddy red and white CBA calendar I set off around the country. Come winter almost no one was digging. But Margaret and Tom were.

Stories of austere living conditions, the cheapest bulk cash and carry food, the bitter cold, a scruffy little dog called Reject, Margaret's determined obsession to record every last scrap of archaeology if only because it was there, are all well known, and true. Like many, I found Margaret friendly and helpful, and I admired her stamina and eccentricity – to be saving all that archaeology in such an abandoned place!

Among repeatable memories are the cook being asked to sort through a sack of rice to remove mouse droppings; the only occasion I became truly drunk (I woke up lying on a table in the communal hut, having looked up at the night sky and noticed how the stars had suddenly become long arcs); and getting a local vicar in

to hold a service to expel the ghost of an Anglo-Saxon woman, lost amongst the extra-large tins of spam.

Unusually, I had a car, an old red mini my Dad had bought from a scrapyard for £25 and given to the farm mechanic to make roadworthy. In this we drove out to the refinery at night, a spectacular array of flames, floodlights and flashing colours without a human being in sight. That was the epitome of Mucking entertainment for me, but we also went to the cinema in Thurrock (*Clockwork Orange*), toured sites in East Anglia (visiting Catherine Hills at Spong) and drove over to Stonehenge for the summer solstice.

On that occasion, we were stopped on the way twice by police, clearly suspicious of an old car full of young hippies. There was a petrol shortage, probably the result of a strike or two, and one of the police pointed out I had fuel dribbling onto the road. He thought I'd overfilled at a garage, as many were then doing, but in fact it was because there was a leak. A few weeks before, I'd given the car keys to a fellow digger so he could get back to his tent from a little party we had going (warmth in company). Unfortunately the combination of drink and darkness led to him driving off the track into a quarry pit, rolling the car. Luckily he was unhurt, and when the next day we all gathered to drag the car back out, amazingly it started and seemed to be fine. Just a bit of a petrol smell. The policeman waved us on.

We then slept briefly inside the burial chamber at West Kennet, where I had my first and last encounter with a saveloy. At Stonehenge there were what would now seem to be hardly any people at all. A Druid explained to me how he could advise us when we should plant our crops, as he leant against the Druid bus in the car park. We sat in the ditch in the dark (good place for little bonfires), and at dawn followed Druids around as they held their ceremonies.

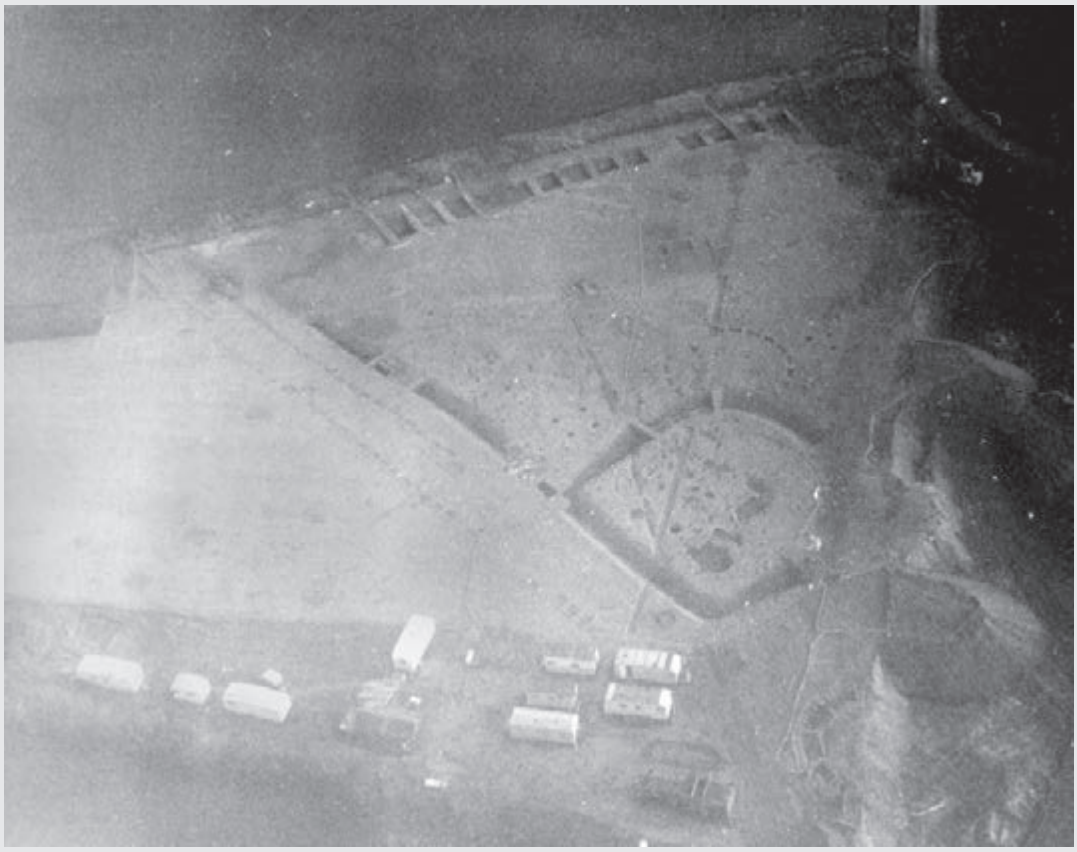
Geoff Wainwright

Mucking carried its own intimidating aura. The very name conjured visions of icy mud blasted by hailstorms through which could be dimly seen the half legendary figures of Margaret and Tom grimly hoeing endless expanses of frozen gravel. Stories of the site were numerous and improved with repeated telling. I benefited hugely from the Mucking diaspora. The fleeing figures could readily be identified as they tended to huddle in a corner of the communal marquee avoiding eye contact and starting nervously if spoken to by a supervisor. The exception was Peter Donaldson,

Figure 2.45. (opposite) Another project-archive curio, the bottom image is an annotated tracing-paper overlay for the upper aerial photograph that shows the Iron Age North Enclosure as dug. Not only does it detail the excavated features, but also the layout of the campsite's facilities in the foreground (including Tom and Margaret's separate caravans, with hers being by far the larger). Almost like a latter-day material culture study, why anyone would go to such effort to render this is difficult to comprehend. It would, however, seem that its rationale relates to the distinction of the Brickearth's limits indicated in the upper right corner; it is this image that provided the finds label-extension information for Figure 1.16's postcard mapping!

In his 'Mucking Remembered' reminiscence Robert Rickett writes of its campsite (emphasis added):

> *In between school and university I spent a year on archaeological excavations, nine months of which was at Mucking, Essex (late September 1971 to June 1972, as a volunteer excavator, then as an assistant supervisor). The group of old huts and caravans, and an old lorry called Esso, stood on top of the gravel terrace above Walton's Farm. Margaret and Tom Jones lived in a caravan on site, for security … The gravel quarry seemed vast, and nestling in the bottom was the conglomeration of huts and tents where diggers lived. On the Mucking Excavation Committee notepaper it was known as 'The International Excavation Camp'.*
>
> *Margaret expected everything to be done exactly as she wanted; punctuality was important and digging continued in bad weather. In winter we worked from dawn to dusk and then by gaslight on indoor jobs. If a frost was expected, bags of straw were placed on top of the area to be worked the next day. Tom had been a professional photographer. He had an impressive collection of Leica cameras and lenses. He was always smartly dressed in a shirt, tie and jacket with decent trousers – not the usual gear for an archaeologist.*
>
> *There was a large store hut in the camp, a few small huts reserved for site supervisors and an outdoor shower. This was fine in summer and could be very warm as the water supply came over the site in a black pipe. Margaret had made an arrangement with the local Bata shoe factory in East Tilbury for us to use their showers in the social club in colder weather. This was a long trek, but the walk back conveniently went by the local pub. I spent some time sleeping in the store hut, accompanied by several mice who had taken refuge in there for the winter. One night I had left a chocolate wafer biscuit in my coat pocket, so one hungry mouse nibbled its way through the cloth to get to it!* Having been made an assistant supervisor I then ascended the hierarchy in sleeping accommodation – to an old caravan on the main site – which also had mice!



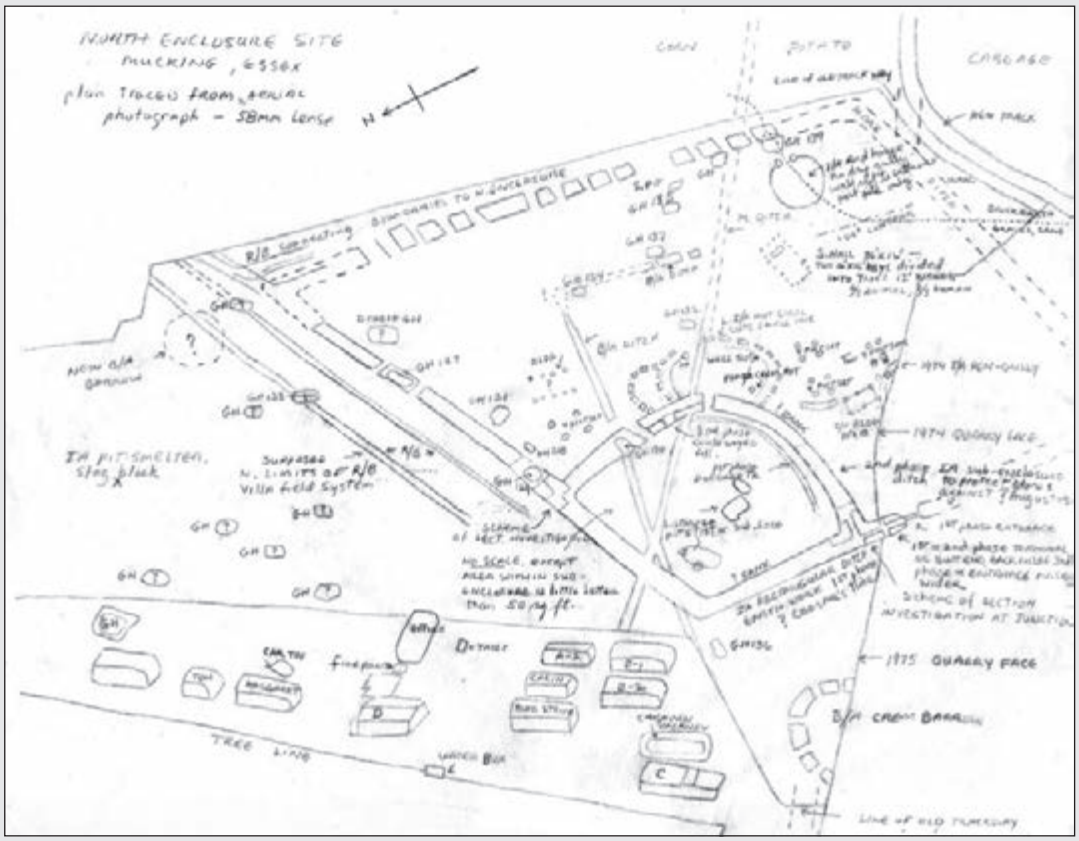

NORTH ENCLOSURE SITE
MUCKING, ESSEX
plan traced from aerial
photograph – 58mm lense
N
CORN
POTATO
CABBAGE
1974 QUARRY FACE
1975 QUARRY FACE
TREE LINE
WATER BOX
LINE OF OLD TRACKWAY

Figure 2.46. Mucking's attendance register for summer 1966 (see Chap. 1, Note 9). Over the eight-week period 80 volunteers participated (with women indicated in red and men in blue); amongst the 11 staff members are Tim Potter and Tim Schadla-Hall (respectively paid £29 and £22 for their seven- and five-week stints). In later seasons the percentage of overseas diggers grew greatly, with upwards of half coming from the Netherlands, Poland and other Eastern European countries. (Note that the archives hold comparable registers for each year of excavation and offer tremendous potential to reconstruct site-team dynamics.)

who was my dear friend and right-hand man for many years. Mucking held few fears for Peter, who survived a car crash that put him into Frenchay for 18 months, from where he emerged composed largely of metal and with a villainous eye-patch that he removed to terrorise new recruits. Margaret spoke warmly of him. Wedded to site hierarchy, intolerant of human frailty and a superlative organiser, Peter regarded me tolerantly as a softie and in his cups would reminisce fondly about the good old days in Essex. The expertise and attitude of the Mucking refugees who sought sanctuary on my digs left me with enduring respect both for them and for Margaret and Tom.

Barbara Kinnes furthermore remembers Peter Donaldson reading out the site's *Instructions to Volunteers*, 'cut-off socks make good hand-warmers' and saying very seriously to Margaret, 'What goes on my feet then?' There was a typical Margaret sniff as she replied, 'We expect people to have more than one pair of socks, Peter.' Also, speaking with Philip Crummy (he had applied to volunteer at Mucking, but never went), he related how he had been told that there was a set whistle relay for tea-breaks. Those furthest away from the site huts would get blown in first, then those in the mid-field, and so on, until everyone was gathered in; the image of a PoW camp sprung to mind.[21]

A number of these reminiscences evokes the imprint of mass collective memory: the cold, the terrible food, the site dog and, of course, Margaret's character … so much for excavation as any kind of deeply intellectual exercise! We'll leave it to John Barrett to have the last word (emphasis added):

> I went to Mucking and stayed in some very cold caravans. *It was a heroic excavation, they were fighting against the odds. They were all linked on that idea that they were rescuing the past from the jaws of destruction, and it was inspiring, I thought. I had enormous respect for Margaret, she carried that bloody thing and she ran it, you know – a woman out there, running all that lot!*

Discussion

Having plotted and analysed the site's Mesolithic to Middle Bronze Age distributions, we are now in a position to attribute the chronological/'cluster' composition of the main flint 'scatter zones' (see Fig. 2.47), with a number being of multiple phase:

I) North Field-end – Clusters A (earlier Neolithic) and I (MBA)
II) North Enclosure/Barrow 3 – Clusters B (earlier Neolithic) and H (Beaker)
III) Mid-field Zone – Cluster D (Grooved Ware)
IV) South-Centre – Clusters C (earlier Neolithic) and F (Beaker).

Before proceeding it is worth stressing that – the barrows aside – although Mucking's pre-Middle Bronze Age usage was not particularly highlighted, the results certainly make a substantial contribution to the understanding of the region's earlier prehistory. Due essentially to its dense cover of later features and the sheer intensity of their excavation, they effectively serve as a sampling grid for the recovery of large quantities of residual flintwork. Accordingly, its Neolithic and Beaker distributional foci can be detailed to a degree that is not found on the vast majority of (even recent) landscape-excavation projects, which usually lack such feature-based 'sampling grids' (nor see any significant ploughsoil-sampling component). Admittedly, this amounts to an unforeseen bonus in the case of Mucking's data; nonetheless, to find comparable distributional patterning you would have to turn to, for example, either Light *et al*.'s Hampshire fieldwalking results (1995) or that of the Stonehenge Environs project (Richards 1990; see also e.g. Edmonds *et al*. 1999).

Leaving aside material from Mucking's main Middle Bronze Age features, if combining the flints recovered from 'attributed' features (i.e. presumed non-residual contexts; Table 2.2) and the barrows (Table 2.7) this amounts to just over 1100 pieces and, thereby, represents just 4% of the site's total assemblage. While other pre-Middle Bronze Age features have undoubtedly gone unrecognised, recent work such as at The Stumble (Wilkinson *et al*. 2012) has highlighted just how much more Neolithic (and Bronze Age) material there is in surface deposits as opposed to any contemporary features (see also e.g. Leivers *et al*. 2007). Indeed, it has been estimated that generally only 2.5–10% of worked flint occurs within contemporary features in contrast to their accompanying surface-scatters (Evans 2013) and, by this measure, Mucking's values are not unreasonable. That said, we have, of course, no idea of the total quantities that went 'missing' in the stripping of the topsoil.

Only Beaker Clusters E and G did not correspond to one of the main flint scatters. Having said that, the Grooved Ware swathe was the only cluster (D) that registered as a single-horizon 'scatter zone' (III), albeit having the second lowest flint density of the four. As regards the latter, it is interesting that, though having the lowest flint density, the North Field-end scatter (I) – in addition to its earlier Neolithic and Middle Bronze Age clusters – saw the highest overall period-representation, with both Grooved Ware and Beaker also occurring there, albeit in low 'non-cluster level' numbers. Similarly, limited Middle Bronze Age material occurred within the area of Scatter Zones B and D, and also within the area of Beaker Cluster F in the south.

Lacking 'robust' directly occupation-related economic evidence and any immediate palaeo-environmental data (i.e. pollen cores; see, though, Wilkinson 1988, 101–14 & 123–6, fig. 98), it is difficult to offer locally specific explanations for Mucking's early occupation distributions. Indeed, it could be posited that the patterning attested to – localised Mesolithic, dispersed Early Neolithic, localised Grooved Ware followed by more widespread/multi-foci Beaker – are of a kind that could now be recovered from many parts of southern England if

Figure 2.47. Neolithic and Bronze Age clusters (A–I) in relationship to scatter zones (I–IV).

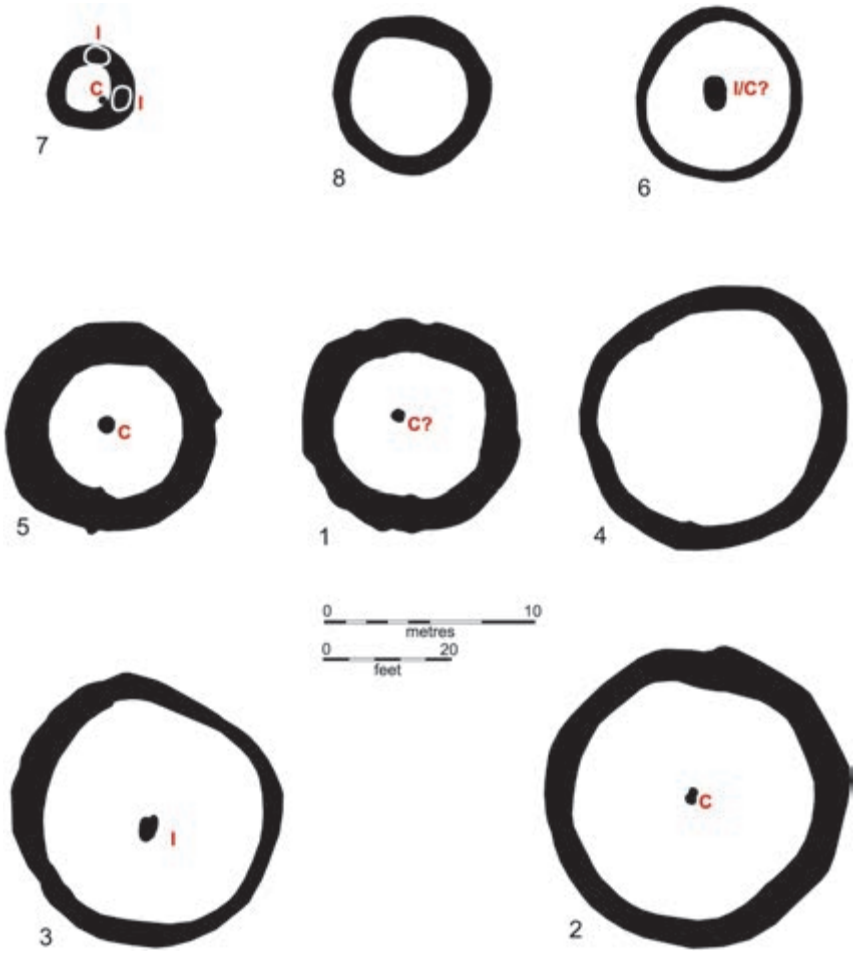


Figure 2.48. Comparative Mucking barrow plans, arranged by size.

investigated at sufficient scale. Variously attesting to what must have been brief 'camp-type visitations' (Mesolithic/Neolithic) and probably short-duration occupation *per se* (Beaker), particularly unfortunate in this regard is the lack of economic data relating to the intervening Grooved Ware usage. Elsewhere, that period can display traits of both, with some of its occupations focusing on wild resources whereas others were evidently more arable-based. Having said that, the quantities of pottery involved in Mucking's Grooved Ware occupation could, in itself, argue against any kind of mobile economy (see Evans *et al*. 2009, 177–9).

What we can be more assured of is that, if faced with these distributions, the Joneses would probably have interpreted the site's four Beaker scatters – in contrast to the one of Grooved Ware attribution – as representative of a 'pioneering' influx of Continental Beaker-using communities (with the Grave 137 individual being, perhaps, a leader; cf. the Amesbury archer; Fitzpatrick 2002 & 2011, see also e.g. Thomas 1991b & Sarauw 2007). Indeed, with the accrual of further scientific evidence (such as isotopes; e.g. Jay & Richards 2007) this may be shown to be correct. Be that as it may, the most immediate parallel for Mucking's richly furnished burial is a grave excavated at Orsett 'Cock' with two beakers and a bowl (Milton 1986; see also, e.g., Kinnes *et al*. 1998, 59–61, Bennett *et al*. 2008, 15–21 & Howell *et al*. 2011, 36–7).

Leaving aside any dating ambiguities of the site's barrows (see below), there seems to have been something of a hiatus in the terrace's occupation during the Early Bronze Age. While a Beaker presence is well represented, the paucity of Collared Urn is marked and difficult to account for. Only seeing comparable pottery levels again some 500 years later, the answer may relate to Mucking's non-river valley situation: its adjacent marshland resources only proving a draw again during the Middle/later Bronze Age. That said, as is further outlined in Chapter Six below, Mucking's paucity of distinct Early Bronze Age occupation seems to reflect a more widespread regional phenomenon, with Collared Urn generally being rare (see also Fig. 1.22, top).

As to the understanding of the Bronze Age landscape, this unfortunately is severely compromised by potential differential machining depth and/or plough-damage. In the same way that surely not all

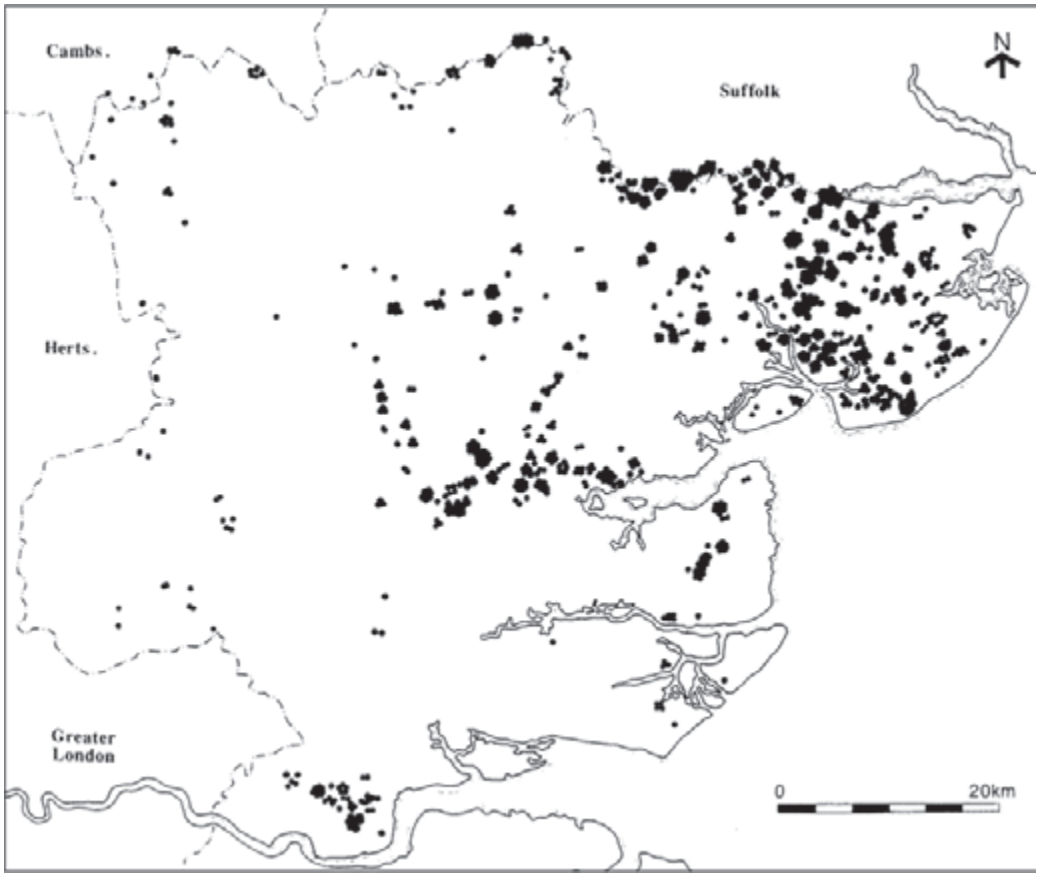


Figure 2.49. Holgate's 1993 Writtle conference distribution map showing Essex's ring-ditches and earlier Bronze Age domestic sites (1996, fig. 3).

of the fieldsystem boundaries were recovered, nor is it likely that all of the interments associated within its barrows survived. Mucking's barrows appear to represent a variant on monument traditions (Fig. 2.48). With the exterior diameters of most falling between 9.75–14.0m, this is well short of the 25–30m diameters of 'classic' Early Bronze Age barrows (e.g. Lawson *et al*. 1981; Woodward 2002). At this scale they would fall within the upper end of the Ardleigh Group-type 'rings' of *c.* 1400–1200 BC (Brown 1999, 171–7; Germany 2007, fig. 71). However, they lacked the urned cremations associated with the latter, and Mucking's seemingly contemporary inhumations would have no obvious parallels with that tradition. Instead, such inhumation burials and, otherwise, its directly pyre-related/-derived cremations, would better fit with an earlier Bronze Age date although there is a marked paucity of associated pottery – one definite Collared Urn sherd only.

The layout and rites associated with the very small Barrow 7 would seem to have greater affinities with earlier, pond barrow-type monuments than late 'urnfield-type' rings (e.g. Pampisford, Cambs.; Pollard 2002 and see also Germany 2007, 69), and the lack of clustering of Mucking's barrows would also distinguish them from other Ardleigh Group 'ring' settings (e.g. Germany 2007, fig. 79). Given this, and the radiocarbon dates achieved for two of the site's barrows, it seem best to assign them to the later Early Bronze Age/early Middle Bronze Age, *c.* 1700–1400 BC.

Although the later/Middle Bronze Age Ardleigh Group rites may well have been localised to northeast Essex (e.g. Brown 1999, fig. 111) – as are so many of the county's Bronze Age sites and monuments generally (Fig. 2.49) – Mucking's evidence could suggest that the origins of its 'small-ring' cremation monument tradition developed out of a more widespread phenomenon. In this capacity, the Pincey Brook barrow, recently excavated at Stansted Airport in the northwest of the county appears to provide a close parallel with Mucking's barrows. Broadly ditched with an internal diameter of *c.* 8.0m, the scattered remains of four/five unurned cremations were recovered in association and the monument was firmly dated to the Middle Bronze Age (seventeenth to fifteenth centuries BC; Cooke *et al*. 2008, 58–63; see also Bennett *et al*. 2008, 21–46 & 97–100 for the small-ring settings of a number of Monkton, Kent's monuments).[22]

As mentioned above, only one of the cremations within the North Field-area would seem attributable to the Middle Bronze Age. Based primarily on its alignment, the main cremation cemetery within that swathe would appear to have been of later Bronze Age date. As, however, is fully discussed in the chapter that follows, this does not preclude the possibility that some of the other isolated and unurned (and, essentially, undated) cremations within that area were not also of 'Middle' attribution.

The two fieldsystem 'blocks' that were recovered in their (near-) entirety within the same northern part of the site were surely part of a much more extensive system. Certainly continuing northwards to the North Rings-area, the ditch fragments that were distinguished around its southern counterpart could also have been part of that system, with intervening boundaries lost through stripping. Apart from the aforementioned 'bracketing' – pre-South Rings and post-Barrow 3 – there is little firm basis by which to date Mucking's fieldsystem tightly. Based on its general layout/morphology, plus the few Deverel Rimbury sherds recovered from its ditches, it is nonetheless safe to assign it to the Middle Bronze Age, *c.* 1500–1200/1000 BC. Locally both it, and the ephemeral occupation evidence recovered in association within its northern sector, would have its clearest regional affinities with that at North Shoebury. There, dated to 1500–1000 BC, dispersed pit and posthole clusters occurred within ditch compounds that were thought to be linked to a wider fieldsystem (Wymer & Brown 1995, 20–1). Indeed, due to its lack of decoration (in contrast to the Ardleigh Group), its pottery was directly compared to that from Mucking and other Lower Thames sites (Brown 1995, 78–80).

Taking into account the cropmark evidence of a droveway by the North Rings, Mucking's fieldsystem would appear to relate to 'big block' allotment and have vague parallels with, for example, Fengate (see e.g. Pryor 1980a & Evans *et al*. 2009, 12–14). Certainly, it would seem to differ from the Late Bronze Age system at South Hornchurch, where the droveway in its main Phase 2 layout was interrupted around its small 'Rings-type' ringwork and its fieldsystem interval was far narrower (45–50m; Guttmann & Last 2000).[23]

At Mucking there are only hints that its fieldsystem may have seen phased or sequential development. As discussed above, the small ditched paddocks along the eastern side of Block I (i.e. the North Enclosure-area) may attest to subsequent elaboration – perhaps occurring as late as the Late Bronze Age – as, indeed, may also the 11908/11910 (*et al*.) boundaries within that area (see Fig. 2.37's grey-tone features). Equally, whereas Ditch 10 clearly cut the barrow itself, the relationship of Barrow 3 to the fieldsystem might even tell of phasing between, at least, that monument and the boundary system; the flattening of the barrow's northeastern sector could suggest that it actually post-dated the double-ditch line on that side (Nos. 14/15). Indeed, given the manner in which Ditch 12 continued across the line of Ditch 10 – and if accepting the more suspect system-related Ditches 10052 and 10122 as 'real' – it is even possible that within the North Field-area the fieldsystem originally had a more northwest–southeast oriented, parallel reeve-like layout, integral with the monuments. If so, then it would be the 'Block' structure that would instead represent its later form.

As discussed by Yates (2007, 20–8), in recent years widespread evidence of second millennium BC settlement and fieldsystems have been found on both banks of the Thames Estuary. In Essex, apart from a clustering in the area of the Southend Peninsula, these mainly extend westward from Mucking (Fig. 3.39; *ibid*., fig. 3.3). Yet, this picture may largely be determined by the focus of large-scale development and its ensuing exposures. Perhaps a more telling result is that arising from the A120 fieldwork across the Boulder Clays in the north of the county. There, while Neolithic activity only registered on six of the 40 sites investigated, evidence of Middle Bronze Age occupation/activity was found at 11 locales; aside from settlement features *per se*, this also included linear features that were possibly fieldsystem-related (Timby *et al*. 2007, 180–1, table 6.1). In contrast, however, with the period's 'Late' horizon, evidence of Middle Bronze Age usage seems lacking from Mucking's immediate environs' sites (see Table 6.2). This may in part simply be a product of their limited exposure, it being notoriously difficult to distinguish such traces from only limited-scale investigations.

Although as mentioned above, Mucking's various Neolithic and Beaker usage/occupations can be plotted to a unique degree, having now outlined its barrows and Middle Bronze Age fieldsystem it is after this time that it is no longer just a matter of tracing the local expression of the region's common or, effectively, generic landscape sequence. As addressed in the following chapter and further explored in Chapter Six, this is a point of significant juncture, as with the Late Bronze Age and the establishment of the Ringworks the terrace's sequence took off and became extraordinary.

Notes

1 While not environmentally detailed, the potential of Essex's exposed coast-/shore-line findings – its 'Lyonesse surface' – has, however, long been recognised (see e.g. Warren 1912, Warren *et al*. 1936 & Longworth *et al*. 1971; see also Murphy 2009).

2 Following the writing of this volume this has now subsequently been published (Biddulph *et al*. 2012,

chap. 2); see also Figure 4.87 concerning the area's marshland topography and Rippon, Chap. 6.

3 http://www.environment-agency.gov.uk/research/library/consultations/106100.aspx.

4 The excavations' focus on later periods (and technique) probably also contributed to the 'under-recovery' of the site's flintwork; for example, only 528 pieces of burnt flint were recorded – far too little for an assemblage of this size – and few microliths are likely to have been forthcoming without intense sieving. There are, in fact, notebook entries indicating that some excavators were unable to identify flint and, hence, had apparently discarded it. Note that high densities of worked flint also appear to have been present within the site's top-/sub-soil (Jones 1971a, 34). By the same token, that only 257 worked flints were recovered from the *c.* 3.7ha excavated of Highstead, Kent's 'Mucking-type' multi-period landscape in 1975–7 (Bennett *et al*. 2007, 251) must either attest to low recovery rates or very little pre-Middle Bronze Age activity (*cf*. Edmonds 1995).

5 For a variety of reasons it has not proven possible to include illustrations of all of the items cited here. Equally, we have attempted not to overburden the text with specific-piece numbering; where such references are necessary, but the items are unillustrated, this is indicated by 'NI'.

6 The archives actually hold two Early Neolithic pottery reports, the most complete being that by Kinnes, with the other written earlier by Birley. In the latter, none of the material was directly identified as being Mildenhall and only two plain bowl sherds were indicated; instead, in addition to the Mortlake Bowl sherds, six other Peterborough Ware sherds were highlighted. Based on the vessel illustrations and general precedent, Kinnes' report has been selected as the 'official' version. However, he did not actually examine any body sherds and, accordingly, the combined report here includes three sherds recognised by Birley as Peterborough Ware. Birley's text was accompanied by a lengthy discussion (here omitted). Interestingly, in terms of 'short' chronology arguments, it mentions the possible overlap of Fengate, Grooved Ware and Beaker traditions; 'overlaps' being an issue that had, of course, a long pedigree (see e.g. Warren's 'The classification of the prehistoric remains of Eastern Essex' of 1912, in which he also attempted to synchronise the county's findings with those of Ancient Egypt.

7 The Grooved Ware pottery catalogue was obviously not finished and not all of its entries were described. Equally, largely due to a paucity of absolute dated assemblages within Eastern England at that time – Mucking's included – Birley's text now reads as being rather outdated. It is, however, of considerable historiographic value and, accordingly, we have retained his introductory text, though its discussion-section has been omitted and replaced with Mark Knight's updated appraisal.

8 Chadburn & Gardiner 1985.

9 Respectively 2872–2051 cal. BC and 2839–2210 cal. BC (see Bowman *et al*. 1990).

10 2205–1776 cal. BC.

11 2459–1774 cal. BC.

12 2279–1900 cal. BC; Bradley *et al*. 1993 (in point of fact Playden lies only *c.* 75km's distance from Mucking, while Hunstanton is some 150km away).

13 Respectively, 2471–2038 cal. BC and 2396–1980 cal. BC.

14 Actually, comparison with Figure 1.4's contour plan suggests that this was not the case, though the site's surveying may have been too coarse to have registered a local minor rise.

15 2195–1795 cal. BC; see below.

16 See the 1982 publication of Gibson's thesis.

17 Now correlating to *c.* 2450–1850 cal. BC (see e.g. Ambers *et al*. 1992).

18 On one of the MPX-phase plans it was indicated that the flintwork from this area generally warranted detailed analysis; it is unfortunate that this was never progressed.

19 See now also Brown 1999, 76–116.

20 It is a pity that Tom's tapes apparently didn't make it into the site archives. It does include, though, cassette tapes of Margaret. Three are from radio interviews and another is a record of a lecture given by her to visiting American students; they do not, unfortunately, offer any unexpected or 'off-the-cuff' insights.

21 A comparable ethos to Mucking's quasi-military inspired organisation – including the role of an excavation campsite 'Commandant' – also underpinned John Alexander's *The Directing of Archaeological Excavations* of 1970 (that being due to his Indian Army background).

22 Two small ring-ditch monuments were excavated at Great Holts Farm, Boreham Essex. Just 5.3m and 5.6m across, these were only broadly dated to the Late Neolithic/Early–Middle Bronze Age (Germany 2003, 9–12, figs. 6–9).

23 Narrow interval fieldsystem boundaries at Whitehall Wood, East London have now also been attributed to the Late Bronze Age (Howell *et al*. 2011, 39–41).

Chapter 3

The Rings
Late Bronze Age

As outlined in the first chapter, the South Rings was originally thought to have been a Neolithic henge based on its morphology. During the project's first seasons, it was quickly recognised on excavation to be significantly later and was interpreted as an Early Iron Age 'mini-hillfort'. Thereafter, with no serious post-excavation directed towards it in the face of the larger site's on-going rescue threat, its status remained unaltered until 1979. As was reported in *Current Archaeology* (Selkirk 1979), that year saw the 'Later Bronze Age Settlement Archaeology' conference (Barrett & Bradley 1980) and, particularly, the presentation of Barrett's reappraisal of post-Deverel Rimbury pottery (hereafter PDR; Barrett 1979; see also Barrett 1976). With this revolutionary paper, Mucking's South Rings suddenly became some 250–500 years older than thought.

The South Rings featured in Margaret Jones and Dermot Bond's 1980 paper concerned with Mucking's later Bronze Age. While then termed a 'stronghold' as opposed to a hillfort variant, what is interesting – but is, again, perfectly reasonable given the lack of comparative context – was that the re-dating of the enclosure really had few ramifications for its overall understanding. As much as anything this reflected that, in its Early Iron Age guise, its interpretation was not explicit beyond its citation as a 'temporary refuge' (Jones & Jones 1975, 141). Yet, with the North Ring excavations (Figs. 1.9 & 2.36) there was now a near-matching enclosure nearby and this provided a much stronger local focus, as did the earlier discoveries of other comparable cropmark-circle sites nearby (Jones & Catton 1971). With this came a potential relationship to metalwork finds from the Thames and, indeed, even control of the river itself, with the latter thereafter becoming a recurrent theme within the terrace's sequence, as this extract from Jones and Bond's paper makes clear:

> Finds and C14 dates make it clear that we are considering two virtually contemporary major earthworks a mere 1 km apart. Ancillary features can only be suggested at this stage. Computer plotting of all Later Bronze Age material, from pit assemblages and residual finds in later features, should indicate the *territory* of, at any rate, the South Rings. The South Rings have no evidence for associated burial, though non-survival of bone may be the cause of this. How many, or indeed whether or not, any of the 100 or so round house sites relate is also not yet clear. What does not seem in doubt is the abandonment of the field system agriculture to a way of life dominated by strategically sited defences which seem to be focussed on the Thames. *Are these the strongholds of people who gained their living elsewhere – either on the richer brickearth soils of the lower gravel terrace, or on the marshes whose importance is well attested in the Middle Ages (Grieve 1959)? The scarcity of related house sites supports this idea, but the large amount of domestic rubbish does not*. The South Rings, as is emphasised by the choice of its exact position by an early Roman stronghold, occupies a dominant site beside what is almost certainly ridgeway followed by modern roads from Horndon on the Hill to East Tilbury at the river crossing at the head of the estuary (Thornhill 1977). The position of its opposed entrances bears out this theme. A case might even be made for a later Bronze Age Mucking controlling the Thames, as later the Saxon *laeti* are thought to have established their encampment on this spot (Myres 1968, 226).
>
> Bronze finds from the river itself have long implied that the Thames is of special significance in the Bronze Age. It would be surprising if new discoveries did not bear this out (Jones & Bond 1980, 478; emphasis added).

Mucking was the first of Essex's Late Bronze Age 'ring-enclosures' to be excavated and a lack of context would have curtailed understanding in terms of expected finds densities, *etc*. Addressing its sequence today has the advantage that a number of comparable ringworks have since been excavated; leaving aside Thwing in Yorkshire (Manby 2007; see Fig. 3.40), there are three of direct relevance in the immediate

Figure 3.1. Mucking's 'Phasing Wall', South Rings, RBI and ABC Enclosures portion (British Museum, Blythe Road Out-station; photograph, D. Webb) and, right, South Rings location plan.

Figure 3.2. Distribution plots: Querns, pyramidal loomweights, salt-making equipment and Late Bronze Age-attributed features.

area – Springfield Lyons, Great Baddow and South Hornchurch (respectively, Brown & Medlycott 2013; Brown & Lavender 1994; Guttmann & Last 2000; see Fig. 3.37)[1] – and, beyond, related enclosure types have also been investigated in Kent (Bennett *et al*. 2007, 16–34; Allen *et al*. 2008; Champion 2007a & c; see also Champion, Chap. 6, below).

As will be emphasised in this chapter's final discussion, even with this accrued context, the South Rings remains 'special'. At the very least, none of the other excavated enclosures within southeast England has its concentric circuit-plan. Although it has attributes in common with the other ringworks – particularly its evidence of metalworking – the formality of its plan is unique within the region and, when seen in this light, its original attribution as a potential henge even now has some vague resonance (see e.g. Collis 1977).

Before progressing, two further points should be stressed concerning the Joneses' understanding of the South Rings. Apart from the fact that they thought that both of its circuits had interior banks (Jones & Bond 1980, 471), first is the recognition that its inner circuit had the highest finds densities of its two ditches and, equally, that its interior contained the majority of the contemporary settlement features. Secondly,

and directly arising from the first, they postulated that it may originally have had only one circuit, with the outer added later (Jones & Jones 1975, 141); this seems an astute observation and has been important for our understanding of the enclosure's development.

From the outset, the circular gully within the centre of the Rings was identified as 'hut'-related (*ibid*., 141) and was, accordingly, assigned a roundhouse reference entry (No. 5). Although a perfectly reasonable interpretation, as is explored below, a degree of doubt must now exist concerning this attribution. Gully-surrounded buildings are rare from that time, and certainly none have occurred within the other excavated ringworks in Essex (see Fig. 3.37).[2] More telling is that, as far as we are aware, no others are known to have an uninterrupted circuit. Given this, other forms of structural settings will need to be explored in relation to the nature of this monument, ranging from some manner of shrine to a late mortuary ring-ditch variant.

As highlighted in the passage above concerning 'the scarcity of related house sites' (i.e. roundhouses), the Joneses themselves apparently distinguished only one Bronze Age building outside of the South Rings, that being the post-circle of Number 107 in the north. During the subsequent stages of post-excavation others were identified (see Etté 1993); nevertheless, their numbers remain low. Aside from the fact that only a proportion of Mucking's Late Bronze/Iron Age wares were ever studied in detail, this also relates to the nature of the site's pottery and that from the Neolithic through to the Middle Iron Age almost all of it was flint-tempered. Temper alone, therefore, provides little basis for feature-chronology; added to this should be the fact that much of the pottery was severely abraded, with many of the roundhouses yielding only minor quantities and, then, often only small undiagnostic sherds. The result of this is that the attribution of many of the roundhouses was, and remains, ambiguous. Obviously, this severely impacts on the questions that can be asked of the scale and duration of the site's extra-ringwork occupation. We will duly rehearse the issues and possibilities, but with little expectation of firm answers.

Having said that, due to the thoroughness of Barford's fired clay analyses, one avenue that was recognised as a basis for settlement analysis and building attribution were loomweight forms: cylindrical being Middle Bronze Age; pyramidal, Late Bronze Age; and, triangular, Iron Age (Jones & Bond 1980, 475; see also Barford & Major 1990). When combined with the sheer quantity of the site's loomweights, this early distinction of what subsequent investigations have shown to be a valid type-series has proven crucial to our analyses. To this end, the distribution of saddle querns can also be used (Fig. 3.2). Admittedly a far less tight chronological marker than loomweights, they nevertheless have some potential to indicate foci of pre-Middle Iron Age occupation (similar problems of the site's Early Iron Age register are outlined in Chap. 4 below). Finally, salt equipment/briquetage can also be brought to bear (Fig. 3.2). While fully aware of the limitations of this 'type-distributional' approach, from this basis we will, therefore, take a lead from Margaret's quotation above as regards the definition of the 'territory' of the Rings and attempt to distinguish the period's broad settlement swathes.

The Joneses were clearly well-aware of the importance of the site's Late Bronze Age salt-making evidence and, drawing widely on Continental parallels, it was a specific theme of interim notices (e.g. 1977). It was to figure in the interpretation of the Rings and, also, the northern settlement area's 'clay pits' (see below). Seeing Mucking as somewhere that salt production equipment was made, it was the main finds-type that provided a direct linkage with the Thames-side marshes and, more specifically, the estuarine Mucking Creek 2km distant:

> At Mucking it could well reflect a stake in the coastal economy by the gravel terrace community, rather than the activity of an itinerant salt maker. There seems otherwise no reason for making the equipment on the hill top, unless this were the home base, since the clay itself had to be brought there (Jones 1977, 318).

In terms of the site's later Bronze Age settlement context generally, the duration of Mucking's fieldwork spanned something of a 'sea-change'. While at its inception, and during the excavation of the South Rings, there would then have been only limited precedent, the situation had radically altered by the time that quarry stripping got to the north end of the main field. This is attested to by the interim site notices that featured in the 1979 conference proceedings (Barrett & Bradley 1980; see also Burgess & Miket 1976), for example, Fengate (Peterborough), Black Patch (Sussex), Runnymede Bridge (Surrey), Billingsborough (Lincs.) and Down Farm (Cranborne Chase), as well as first reports of Fleming's Dartmoor researches (1978). While not as yet so well documented within the immediate Essex landscape (awaiting the work at Springfield Lyons and Lofts Farm; respectively, Buckley & Hedges 1987/Brown & Medlycott 2013 and Brown 1988b), by then there would have been a firm basis of what to expect from settlement of the period. It may, therefore, be relevant that an 'open' later Bronze Age settlement swathe was identified only in the mid 1970s when the excavations reached the end of Mucking's main area.

The pottery from the South Rings will be considered at length in the specialist study section below. In order to utilise the site's vast corpus of MPX-phase pottery drawings (Fig. 3.3), we will here begin with Brudenell's outlining of the period's main designated groups.

Late Bronze Age Pottery Groups
Matt Brudenell

Compared to the effort expended on the illustration of the South Rings pottery (see below), where hundreds of feature sherds were inked-up for archival purposes – a truly extraordinary, but unordered catalogue – there are comparatively few drawings of the Late Bronze Age Plainware ceramics from the rest of the site. Exact figures are hard to arrive at, since it is difficult to accurately spot-date un-annotated drawings. However, the total that can be confidently phased is by no means insubstantial – particularly by modern standards – and includes illustrations of little over 60 vessels, many of which are reproduced below (Figs. 3.4–5).

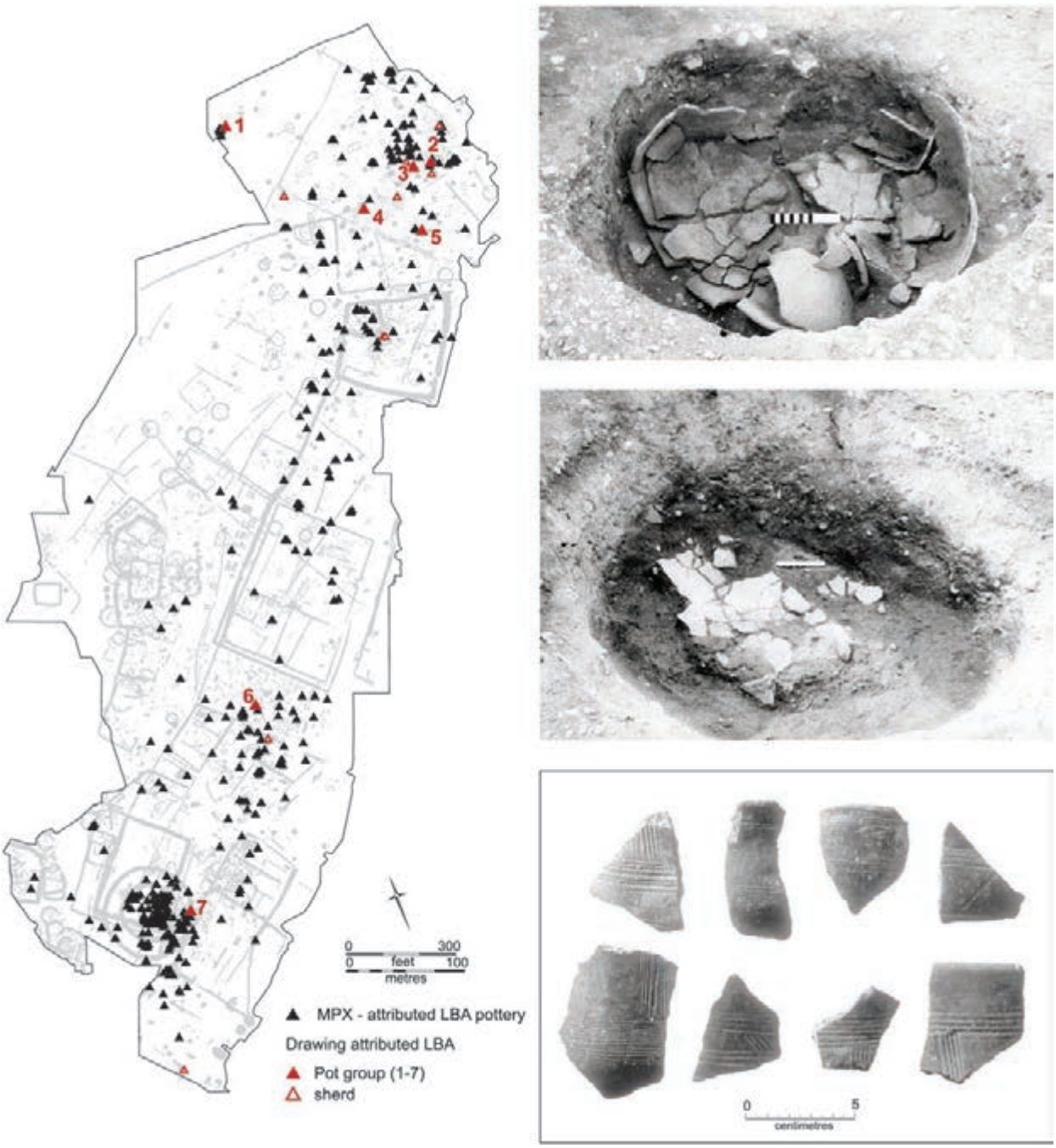
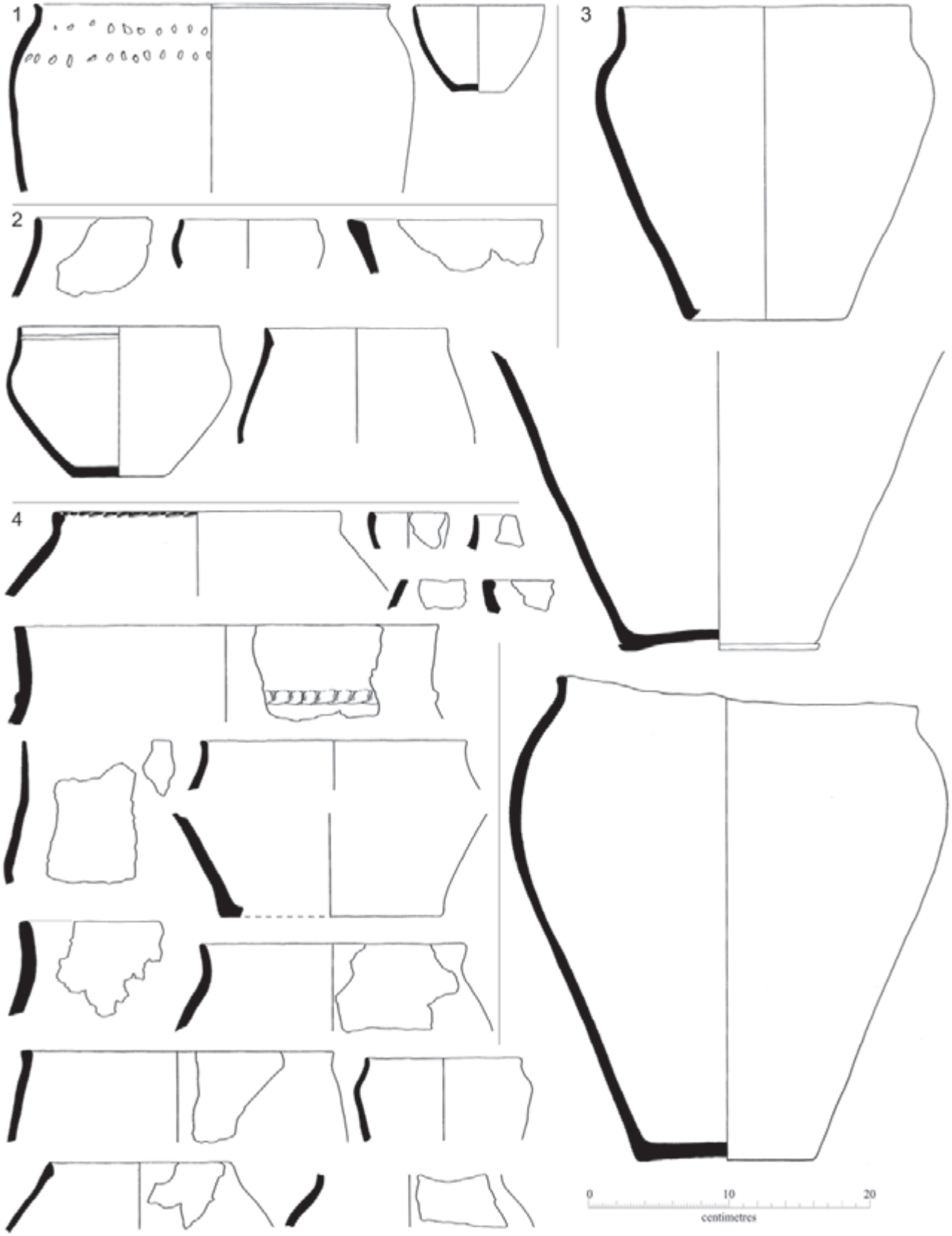


Figure 3.3. Late Bronze Age pottery; left, distribution of both MPX-attributed material and drawn sherds and pot groups; right top, Pot Group 3, pit [25529] (2260N × 968E), fragments of three freshly broken jars; middle, fragments of a large decorated jar (see Fig. 3.4) and carbonised grain deposit in pit [25564] (2243N × 1008E), radiocarbon dated 2360±70 BP (765–255 cal. BC; HAR-2338); bottom, selection of comb-decorated Late Bronze Age fineware sherds.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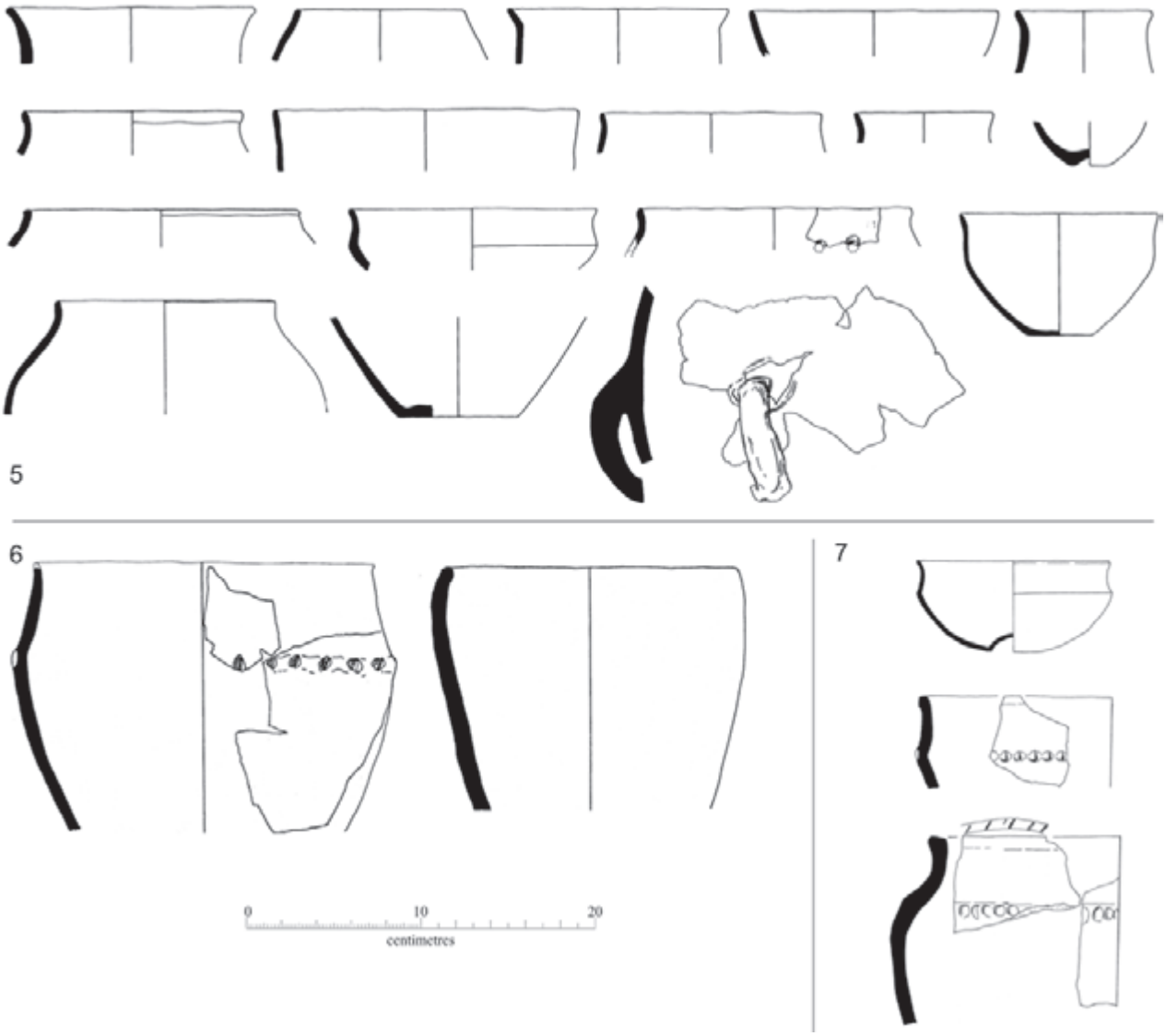


Figure 3.4. Late Bronze Age pot groups (1–7).

It was obvious from sorting the various drawings that the site's major pit/posthole-assemblages had been selected for illustration, and most of the recovered feature sherds from these contexts inked for publication. The seven 'pot groups' briefly described below comprise those features where more than one vessel was illustrated (1–7; with site coordinates and BM context). However, they are not the *only* significant pottery deposits, and many of the other single vessels depicted in Figure 3.5 are equally remarkable in terms of their condition, complete vessel profiles being rare in PDR assemblages. Indeed, many would no doubt be regarded as 'formal deposits' today. There are certainly hints from the way the material is described and sketched in the notebooks that suggests some of these vessels were placed or carefully arranged in the ground, occasionally with other objects. The most spectacular example is from pit [25529], Pot Group 3, where three large, substantially intact jars had been broken on top of one another in a clearly deliberate act (Fig. 3.3). In fact, large complete jars seem to be disproportionately represented in the illustrated catalogue, suggesting these vessels may have been singled out for particular forms of depositional treatment. Some were evidently deposited on their 'own' (i.e. singularly), whilst others form parts of larger 'vessel sets' (Woodward 2000), which often included one or more fineware bowls or cups.

1) 2372N × 435E ([25159]; see Fig. 3.4 for all) – Large shouldered jar with short upright rim and open hemispherical bowl; reportedly from a 'Clay Pit' (no notebook reference recorded).
2) 2274N × 1004E ([25562]; see also Fig. 3.7) – Group containing the complete profile of a shoulder bowl, and fragments of at least four other vessels including

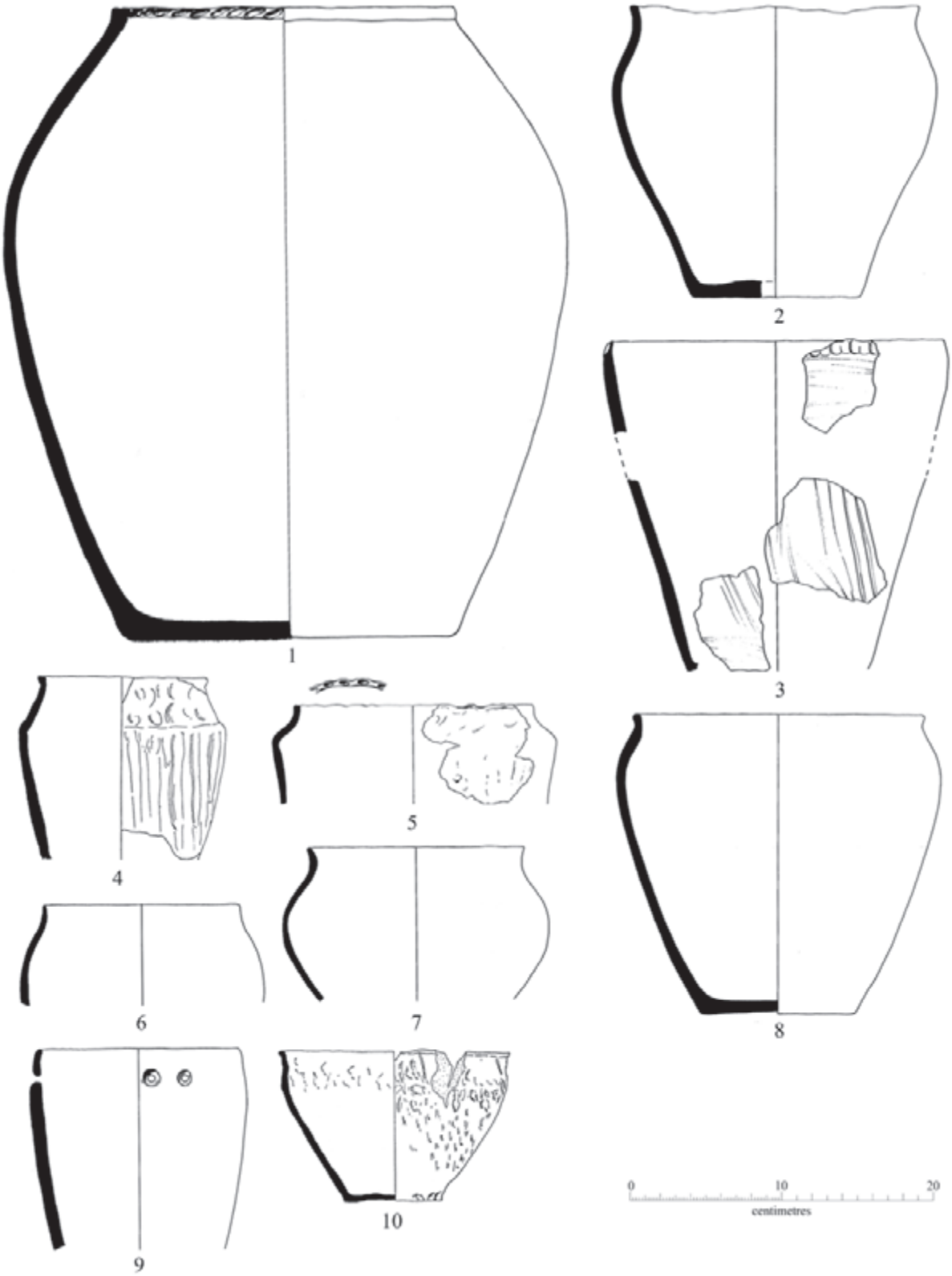


Figure 3.5. Other Late Bronze Age illustrated vessels: 1) 2243N × 1008E, radiocarbon dated 2360±80 BP (see Fig. 3.3); 2) 2195N × 899E; 3) 2177N × 911E; 4) 241N × 316E; 5) 2270N × 936E; 6) 237N × 30E; 7) 1788N × 875E; 8) 1788N × 878E; 9) 2185N × 596E; 10) 678N × 553E.

a bipartite jar with a bevelled rim, and a round bodied bowl/cup. These came from a 'clay'/'salt' pit, *c.* 1.5m across and 0.38m deep, whose base was lined with raw clay (see Fig. 3.8); fragments of fired clay also occurred within its fills.

3) 2260N × 958E ([25529]; see also Fig. 3.7) – Fragments of three large plain jars, comprising the complete profile of two round shouldered vessels, and the lower walls and base of a third pot with a pinched-out foot. Notes jotted on the mock-up illustrations state that the largest complete jar was flint-gritted with smoothed exterior surfaces (Class II?), and copious flint-gritting on the base. Slides of the *c.* 0.6m diameter pit from which material came suggests that the vessels were collapsed on top of one another; the smaller of the two complete jars (Class I coarseware?) possibly having being placed inside the larger vessel.
4) 2145N × 817E ([12031]) – Pit containing fragments of at least 13 different vessels, including shouldered, bipartite, and barrel-shaped jars (one with a fingertipped neck cordon), and a hemispherical cup. These were recovered alongside a pyramidal loomweight. The notebook entries suggest the pit was clay-lined, 0.9m in diameter and 0.4m deep.
5) 2085N × 982E ([10827]) – Sherds from a minimum of 19 vessels, comprising a range of jar and bowl forms typical of Plainware assemblages. Notes accompanying the original vessel sketches suggest that all the pots were flint-tempered. The group includes fragments of three burnished Class IV bowls (including the complete profile of one pot), and the burnished omphalos base of a Class V cup. The jars – all plain except one vessel – are noted as having medium to coarse flint gritting; one with post-firing perforations on the neck. The assemblage constitutes a substantial dump of ceramic refuse that, according to the notebook entries, was recovered alongside a cylindrical loomweight, fragments of perforated clay slab, a spindlewhorl and a flint hammerstone.
6) 770N × 517E ([9914]) – Substantial fragments of two Class I coarseware jars, including a plain vessel with a slight in-turned or 'hooked' rim, and a jar with fingertip decoration on the shoulder. Both pots are recorded as flint-gritted on the original vessel sketches, where two further rim sherds and a base fragment are also depicted (nor reproduced here). The pit is also noted to have yielded a Neolithic leaf-shaped arrowhead.
7) 200N × 335E – Pit containing the complete profile of a plain Class IV bowl with concave neck, deep omphalos base and burnished surfaces. The bowl was accompanied by large fragments of two fingertip-decorated Class I coarseware jars. However, the original vessel sketches show sherds from a further 19 vessel rims (three with fingertipping) and nine bases (none reproduced), though it is unclear how many belong to the same pots. There are also sketches of three fingertip-ornamented shoulder sherds, a cordon, and a single combed decorated sherd. The co-ordinates locate the pit between the inner and outer ditch circuit of the South Rings, but the feature does not appear on the *Site Atlas*. Nor is the assemblage recorded in the BM-phase work on the South Rings pottery. Given the number of feature sherds sketched, this is likely to have been a large assemblage, probably constituting an early Decorated Ware group dating around the Bronze Age–Iron Age transition, *c.* 850–750 BC.

The North Field Settlement

Before sketching the northern area's occupation in this period, two categories of feature – 'clay' and 'pink' pits – can also be explored to further delineate the site's Late Bronze Age settlement areas as a whole (Fig. 3.6). While 'pink' pits appear to have been exclusive to the period, the usage of the 'clay' pits clearly had a longer duration and, accordingly, these had a much wider distribution.

Clay Pits

Across the site as a whole, during the course of excavation some 200 features of this type were identified. Spanning prehistoric to Early Roman times, 106 of these remain unphased. Of the others, 43 are attributable to the Late Bronze Age, with 36 clustering in the northern part of the site and four occurring within the vicinity of the South Rings (Fig. 3.6).

Between *c.* 0.4m and 2.2m across/long and 0.15–0.46m deep, these invariably had steep to vertical sides with either flat or concave bases. They had between one and eight fills (the majority with only two; 26 pits); their clay content was usually light orange brown, sticky, lacking large inclusions and comprised of brickearth, and surviving across the bottom and up to several centimetres thick along the sides of the pits. There was no evidence for the re-use of the pits, which were subsequently backfilled. A large number had upper dark loamy silt fills, frequently with large quantities of pottery sherds and fired clay objects. Thirty pits yielded pottery, 19 had flint, and fired clay objects occurred in 30; in five cases, briquetage was present.

These features were generally interpreted as relating to clay storage, the pits serving to keep the material in a moist plastic state awaiting the manufacture of clay objects – predominantly salt-making equipment and possibly, also, pottery and loomweights, *etc.* – and probably daub wall and oven construction/repair (Jones 1977, 317).

Pink Pits

All told, 45 pits were identified as 'pink pits', which were distinct by their inclusion of one or more deposits of bright reddish/pink clay. These were *c.* 0.25–2.6m in diameter/length and 0.1–0.9m deep. They had steep to vertical sides with concave bases, although the larger examples tended to have vertical sides and flat bases. Each contained between one and eight fills; these consisted of dark brown to reddish loam and, predominately, a deposit of reddish or pink pebbly loam, charcoal flecks and red to pink/purple clayey loam or sandy clay. These horizons frequently contained fragments of pottery, fired clay, ash or charcoal, burnt pebbles and 'cramp' (i.e. daub-like fragments/matrix).

Of the 23 such features yielding pottery, five had

Figure 3.6. Distribution plots: Clay and 'pink' pits; Late Bronze Age distributional zones (left).

identifiable Late Bronze Age sherds. On the basis of these, and stratigraphic relationships with later ditches and *Grubenhäuser*, the remaining pits are also most likely to be of similar date; 15 pits also contained fired clay items.

These concentrated in two clusters (Fig. 3.6). One was within the area of the South Rings, where they occurred in conjunction with four-/six-posters and the clay appears to have been used for post-packing (see below). There was also a northern group, of which three pits were similarly associated with a four-poster (1999N × 706E, 2002N × 709E & 2004N × 704E). With one exception (115N × 150E), all the pits exceeding 2m in diameter/length were located within the northern swathe.

It is difficult to account for what produced the distinct matrix of these features. Thought probably due to a chemical reaction, their pink coloration surely stems from the same processes that generated the red earths of the region's renowned Red Hills and must essentially have been a by-product of salt production (P. Barford pers. comm.).

By interrelating the various 'type' distributions plotted on Figures 3.2 and 3.6 (plus Fig. 3.3's distribution), it is clear that the site included two main Late Bronze Age settlement swathes. Extending over some 3.7ha, that in the south was centred on the South Rings and will be duly discussed in the section that follows; it is the north area (2.6ha) that will be outlined here (see Fig. 6.4). Two caveats deserve airing. First, while these two areas represent the foci of the period's settlement,

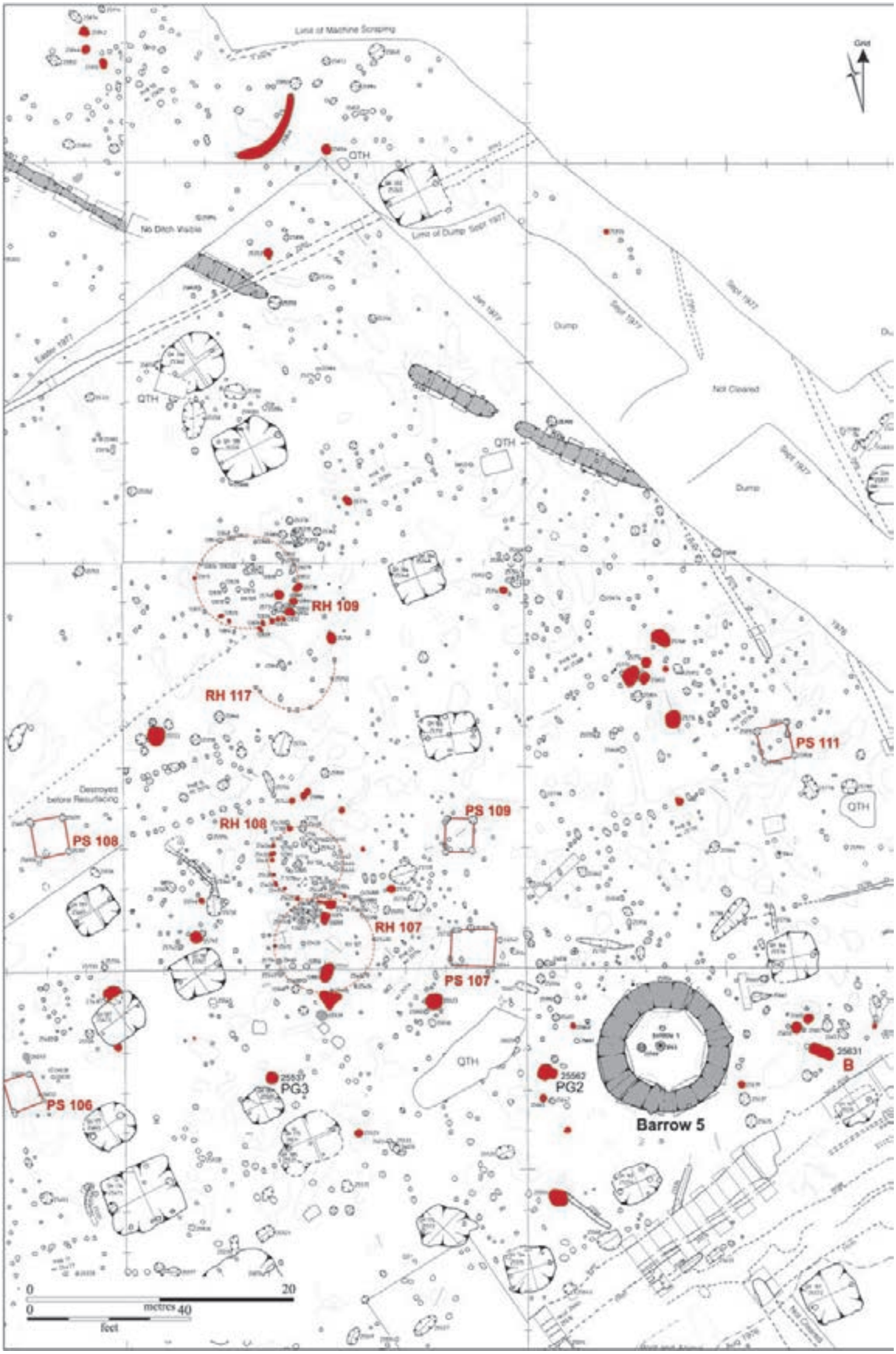


Figure 3.7. North Field-area, phase plan.

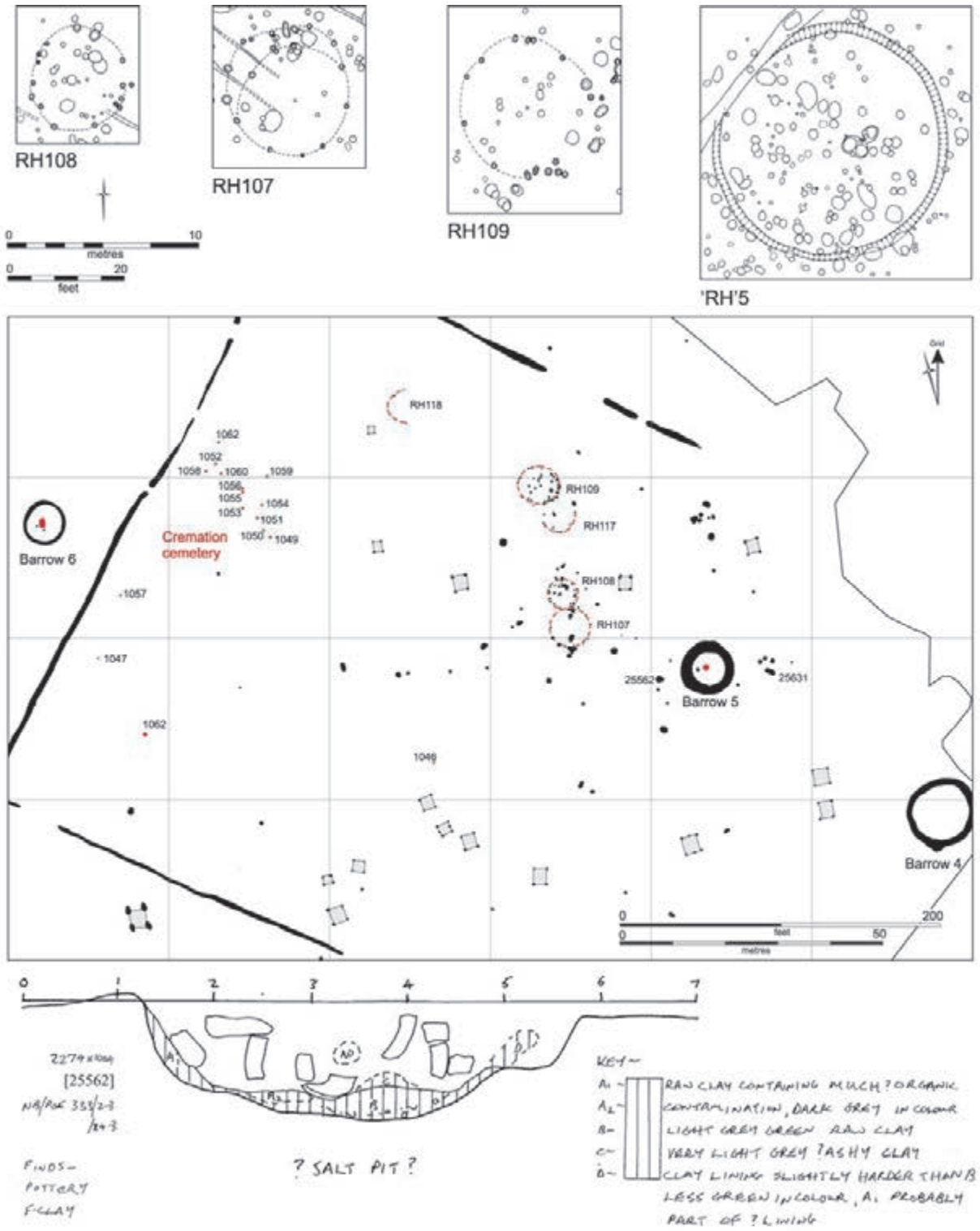


Figure 3.8. Late Bronze Age roundhouse plans (with innermost South Rings circle/'RH5' shown for comparison); middle, North Field-area, interpretative plan: below, Pit 25562 section (i.e. Pot Group 3).

this is not to say that there was no evidence of contemporary activity across the *c.* 240m separating them, particularly within the northern end of the Double Ditch Enclosure (see Fig. 3.2). Second, given the fact that not all of the site's non-South Rings pottery was studied, the northern settlement area's archaeology will, by necessity, be dealt within in a fairly summary manner. Equally, its finds reportage

will be limited and incorporated with the material from the ringwork.

Generally, the north-site area's sequence is amongst the most challenging parts of Mucking to disentangle, given the evidence currently available. Aside from barrows and the Middle Bronze Age fieldsystem, it was peppered with small features and its archaeology essentially consisted of an unusual combination of occupation horizons: Bronze Age and Anglo-Saxon (plus now, also, Early Iron Age; see Chap. 4 below). Apart from the latter's *Grubenhäuser*, both are characterised by (non-ditched) post-built structures and their phase-distinction is not aided by the fact that only a small proportion of their associated finds were ever studied. Where this issue becomes acute is that during course of the initial MPX post-excavation only three roundhouses of the earlier period were distinguished (Nos. 107–9), along with some 30 Anglo-Saxon halls (see Hamerow 1993). Even a rapid scrutiny of the area's *Atlas* map-sheets tells that there were far more of both present and, subsequently, though with less assurance, other roundhouses have been identified. The same is also true of four- and six-posters. Some 49 were distinguished in excavation/first-phase post-excavation, and subsequently our efforts have led to the designation of many more. Unfortunately, none of these were assigned to a chronological horizon and, as a 'problem', this is now compounded by the fact that such posthole settings have since also been identified as a component of Anglo-Saxon settlement. Given this, we have done what we can and will just have to accept the 'cartoon'/broad-brush nature of the results. Obviously, though, this area of the site would certainly warrant future study.

Before proceeding, the 'lie' of the immediate land should be considered. As indicated on Figure 1.4, it is in this area that the contours began to dip down to the north, from *c.* 32 to 30m OD. Equally, this was the one area of the site where brickearth deposits also extended along the western side and not just across the eastern down-slope margins. Given the range of activities that occurred within this north-site swathe (e.g. manufacture of salt-making equipment) and its subsequent settlement history – the lack of any ensuing Middle Iron Age and Romano-British occupation – it can only be suspected that difference in geology (i.e. greater clay content) influenced its immediate land-use.

It is appropriate that we first deal with the period's buildings (Fig. 3.7). Attempting to tease out the settlement's structures, three base-line precepts have been applied:

1) It is assumed that the majority of the four- and six-posters related to the site's subsequent Iron Age usage (and not Anglo-Saxon). They appear to have been arranged on south/southwest–north/northeast alignments and generally occur in front of that period's roundhouses. As alluded to above, however, no gully-surrounded Iron Age roundhouses occurred over the northernmost *c.* 150m of the site.
2) We are fully aware of the possible existence of Late Bronze Age longhouses (e.g. Brown 1988b; Evans *et al*. 2009, 51–4, figs. 2.17 & 2.19). Given, however, just how many Anglo-Saxon 'halls' clearly occur within the area, which are additional to those acknowledged in Hamerow's study of that period's settlement, the unassigned post-buildings of that type have all been assumed to be of non-Late Bronze Age attribution.
3) We have been guided by what can be considered a 'hard' or minimalist approach to this. Many other structure-suggestive posthole clusters occur within the area and suggest that the Late Bronze Age occupation might well have been much more dense/extensive than is presented here.

Adjacent to the northeastern site-edge were the three roundhouses of the period that were identified during the course of excavation/MPX (Figs. 3.7–8):

RH107 (2305N × 953E) – A post-built structure consisting of 13 postholes identified as a 7m-diameter circle; postholes range from 0.25–0.85m across and 0.15–0.28m deep. They were steep to vertical-sided with concave bases and had light brown pebbly loam fills. Two pits, possibly contemporary with the structure, were also identified (2300N × 950E; 2031N × 945E). In total, 23 sherds of Late Bronze Age pottery were recovered in association.

RH108 (2326N × 945E) – A post-built structure of 16 postholes located in an area of numerous pits/potholes and which defined a circle some 7.9m in diameter. The postholes measured from 0.34–0.52m across and were 0.08–0.15m deep; there being no fill or profile data. Fifteen sherds of Late Bronze Age/Early Iron Age pottery were recovered from five postholes (see Brudenell, below).

RH109 (2395N × 930E) – A post-built structure consisting of 15 postholes and a clay pit (2393N × 939E), with the former defining a 7.3m-diameter circle. The postholes were between 0.46m and 0.88 in diameter/length and 0.13–0.28m deep. 'U'-shaped in profile, they had vertical sides and concave bases, with medium to dark brown pebbly loam fills. A minimum of nine Late Bronze Age sherds were recovered.

Immediately south of RH109 another possible such structure has subsequently been distinguished:

RH117 (2370N × 943E; Fig. 3.8) – 6.1m in diameter with 10 identified postholes (0.84–1.05m diam.).

Together the four roundhouses were arranged over a *c.* 35m-long north–south axis and appeared to divide into two 'pairings': RH107/108 and RH109/117. It seems unlikely that all four were directly contemporary and, rather, one from each 'pair' probably stood together.

Lying, respectively, at the northern and southern ends of this area were two other such possible structures:

RH118 (2445N × 847E; Fig. 3.8) – The southwestern arc of a 7.3m-diameter circle (projected) with 10 defining postholes (0.18–0.47m across). One posthole (2453N ×

836E) had in excess of 38 sherds of pottery and included sherds from at least four vessels (some possibly Early Iron Age).

RH119 (2110N × 978E; Fig. 4.48) – This, the southwestern arc of a *c.* 10m-diameter circle (projected), consisted of 10 postholes (0.22–0.40m across).

Some 135m to the southwest were another two roundhouses; although possibly also 'paired', these were separated by a greater interval (*c.* 15.50m):

RH99 (1895N × 741E: Figs. 4.21 & 4.48) – The southern half of a post circle that included a minimum of nine postholes, *c.* 0.5–0.76m in diameter and 0.2–0.28m deep; sides were near-vertical with flat or concave bases. They had sandy gravelly loam to medium brown pebbly loam fills, with distinct brown loam post-pipes. Two sherds of pottery attributed to the Late Bronze Age were recovered.

RH120 (1820N × 730E; Fig. 4.48) – Fifteen postholes (0.2–0.55m across) forming a circular structure 7.9m in diameter.

A series of Late Bronze Age-attributed pits occurred throughout the northwestern corner of the North Enclosure and, nearby, the excavation of RH98 yielded a substantial assemblage of Late Bronze/Early Iron Age pottery. Based, however, on its 'gullied' form (see Chap. 4 below), this structure has, instead, been assigned to the earlier Iron Age.

Only one four-poster appeared associated with the RH99/120 'cluster', PS97 (2143N × 1042E; 2.0 × 3.55m). Within the main Roundhouse 107–9 and 117–20 swathe, 15 such structures seem potentially associated (Figs. 3.7–8):

PS93 (2074N × 1119E) – Four-poster (2.3 × 2.6m)
PS98 (2152N × 931E) – Four-poster (2.4 × 3m)
PS100 (2171N × 1025E) – Six-poster (2.9 × 3.25m)
PS101 (2173N × 887E) – Four-poster (2.4 × 2.7m)
PS102 (2181N × 871E) – Six-poster (2.0 × 2.2m)
PS103 (2197N × 860E) – Four-poster (2.25 × 2.45m)
PS104 (2193N × 1108E) – Four-poster (2.45 × 3.1m)
PS105 (2213N × 1105E) – Four-poster (2.9 × 3.1m)
PS106 (2270N × 874E) – Four-poster (2.3 × 2.3m)
PS107 (2303N × 988E) – Four-poster (1.75 × 2.6m)
PS108 (2334N × 881E) – Four-poster (2.4 × 2.7m)
PS109 (2334N × 983E) – Four-poster (2.0 × 2.35m)
PS110 (2357N × 830E) – Four-poster (1.65 × 1.9m)
PS111 (2355N × 1062E) – Four-poster (2.2 × 2.5m)
PS112 (2429N × 825E) – Four-poster (1.25 × 1.4m).

Just west of the latter, there was another distinct cluster of 'posters' (PS94, 96 & 99). As these lie east of a Middle Iron Age roundhouse cluster, we cannot be certain whether these are of Late Bronze or Iron Age attribution.

It should go without saying that there are other 'suspect' building locations of the period and these will be further reviewed when discussing the site's Early Iron Age in the chapter that follows. For immediate purposes, amongst the most obvious is within the area of 2500–2550N × 890–930E. Overlapping with Posthole Building 50 (Anglo-Saxon), there were a number of suggestive posthole 'arcs'. Equally, a curving ditch/gully length (25846) apparently yielded Late Bronze Age pottery, but also included 'slag' (?iron). Similarly along the western margin of this area, RH106 (2102N × 601E) also comprised a ditch-arc (0.45m diam.; 0.4m wide and 0.05–0.25m deep). Seven pits within its projected interior, as well as a hearth, were thought to be contemporary and, in total, 15 sherds of Late Bronze Age pottery were recorded from the group. While possibly of that date, one suspects that the pits and gully-length may not have been directly related. Certainly, the evidence does not seem to warrant admitting a 'gullied' structure to the period's otherwise post-built roundhouses (see, however, below).[3]

Within the main north-site occupation zone some 56 pits were attributed to the Late Bronze Age. As with the site as a whole, most of the pits had two fills, with 31 including a distinct clay component (i.e. 'clay pits'; see above). Generally, they ranged in size from 0.4–2.5m in diameter (ave. 0.85m) and were 0.18–0.5m deep (ave. 0.3m); thus making them slightly larger than the overall site averages, although not significantly so. Fifteen pits exceeded 0.75m in diameter/length, representing 68% of all the period's pits of this size. Pottery was recovered from 27; sherds from two refitted (2506N × 839E & 2506N × 835E), with a further two pits having, respectively, sherds from a minimum of five and six vessels (2358N × 908E and 2278N × 843E; as outlined above, Brudenell's Pot Groups 1–5 came from this portion of the site).

One pit has tentatively been identified as a well (2308N × 918E). Some 1.5m across and 0.5m deep, it had steep sides, an irregular base and three fills. Its notebook entry describes the fills as medium brown loam with pebbles towards the base, an upper fill of a similar fill, but with less pebbles and the final fill (from a secondary feature or pit) consisting of a slightly darker matrix. Significantly, the excavator noted that one side of the feature was stepped and considered the possibility that this was either a well or a large post-pit (NB347, 83–86); its excavation apparently produced fragments of fired clay, charcoal and a minimum of 231 sherds of Late Bronze Age pottery, some decorated.

As attested by the spread of briquetage, the salt-making activity clearly occurred within the north-site occupation area (Figs. 3.6 & 3.9) and there, as reported by Barford (1990, 81–2), two distinct production areas were identified: one in the northeast (A) and, in the southwest of the immediate zone, Area B. Having vertical sides and flat bases, an elongated flue lay in the centre of both:

A) 25147 (2364N × 420E) – 0.5 × 2.0m
B) 25631 (2279N × 1074E) – 0.5 × 1.75m; 0.2m deep.

The latter of these was the better preserved and

Figure 3.9. Briquetage: 1) Salt-making equipment production areas (see Fig. 3.6 for location); 2) pedestal and 'Angle' pieces; 3) salt vessels; 4–6) salt-making equipment troughs (4, 25147; 5 & 6, 25631; 1–3 from Barford 1980; see also Figs. 3.34 & 6.26).

had a fired clay lining up to 60mm thick. Both were ringed on one of their sides by arc-arrangements of 'clay pits', each some 0.7–1.05m across and 0.2–0.45m deep (Fig. 3.9). The flues had quantities of briquetage. Also including sherds of flint-tempered pottery, the fills of both were crammed with this briquetage with, for example, over 300 pieces recorded in the catalogue from Feature 25147. As cited in this chapter's introduction, writing in 1977 Margaret saw Feature 25631 as relating to the manufacture of salt-making equipment, which accorded with the excavator's notebook entries (NB 335, 3; Fig. 3.10):

> Saltern debris. BUT no evidence of use apart from slight glaze like surface on ?luted frags. [Therefore]SALTERN furniture being made away from saltern site. Apart from shapes of clay objects & oblong shape, this pit seem be matched by several presumed potters' waste pits i.e. sherds (some abraded, overfired etc) & FC [fired clay] above a clay storage pit.

Yet, the mention of a slight glazing on fragments and, elsewhere, indications that some of the fired clay was 'white surfaced' (i.e. possibly salt-derived encrustation) could suggest otherwise. Barford certainly considered these features as where the

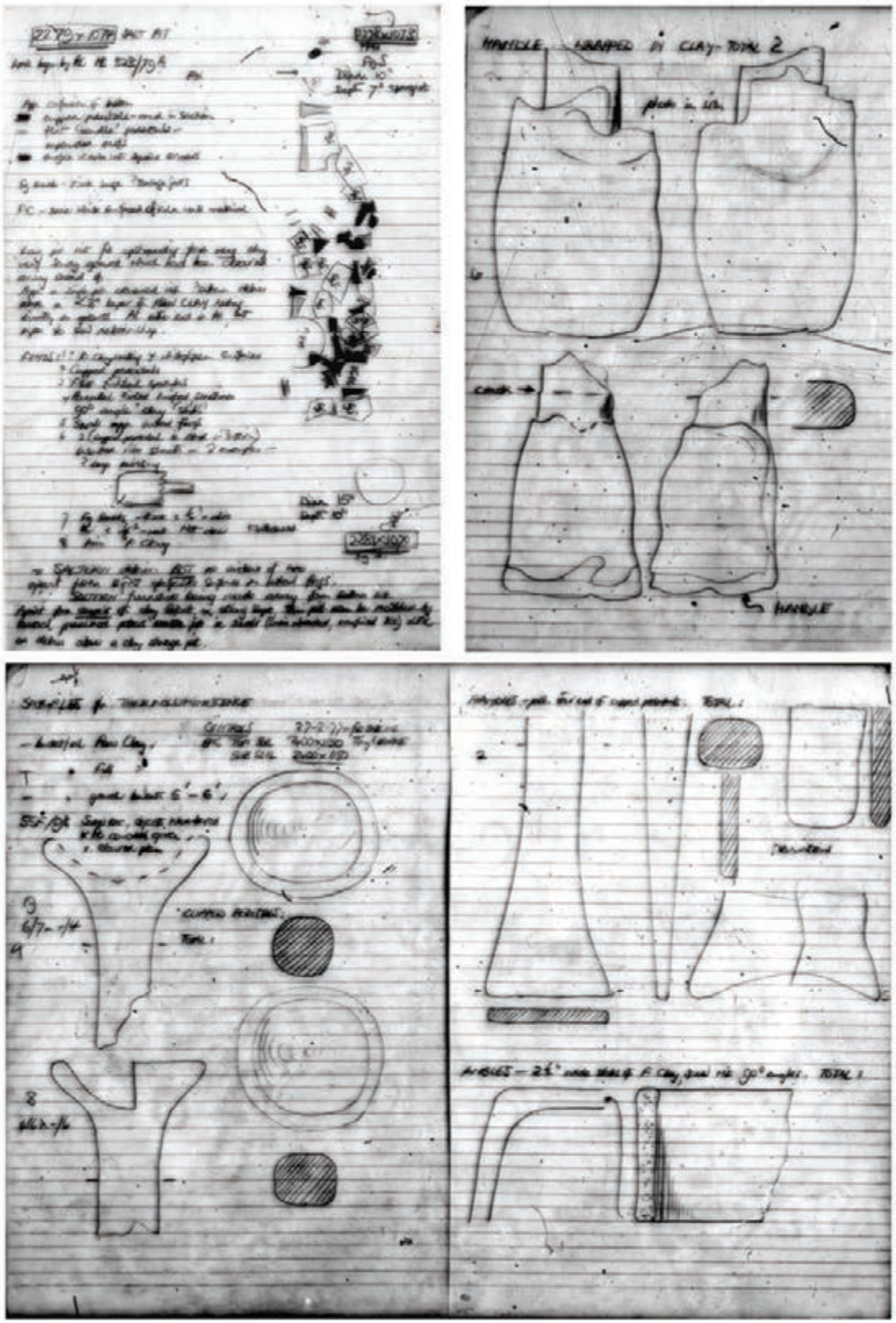


Figure 3.10. Notebook 335 entries relating to the excavation of the 25631 flue; page 3, upper left, details and variously shows the sketch plan location of the cupped pedestals, flat fishtail spatula pieces, angled 'slabs', plus 'luted' pieces and flat-bottomed trough-vessel sherds (sketched examples on lower two pages). Also indicated are two pedestals (with cups removed) that have been sheathed in clay; separately sketched on the upper left page, these are shown on the upper right in greater detail (with pedestals termed 'handles').

Table 3.1. Cremations in Prehistoric Cemetery I.

No.	**Age**	**Sex**	**Weight** (g)	**Max. bone length** (cm)	**Bone colour**	**Degree of burning**	**Bone condition**	**Pit length** (m)	**Pit width** (m)	**Pit depth** (m)
1049	Child (*infans* I)							0.30	0.30	
1050	Child (*infans* II)						Traces	0.15	0.15	
1051	Child (*infans* II?)						Traces	0.33	0.33	0.19
1052	Adult	F	220	5.1	White	Complete	Poor	0.46	0.46	
1053	Adult		290	2.3	White	Complete	Poor	0.30	0.30	
1054	Child (*infans* I?)						Traces	0.30	0.30	0.25
1055	Child (*infans* I?)								0.30	0.22
1056	Adult		390	3.2	White	Complete	Poor			
1058	Child (*infans* II)						Traces	0.30	0.30	0.15
1059	Adult		65	1.2	White	Complete	Poor	0.30	0.30	
1060	Adult		8	1.2	White	Complete	Poor	0.30	0.30	0.30
1061	Child (*infans* I)						Traces			

equipment had been used and as below ground flues linked to low ground-level ovens. He envisaged the salt being first produced, through managed solar evaporation, down in the marshes and then, at the end of the season, transported up to the terrace, where (packed into rectangular vessels) it was fire-dried while supported on the pedestals and angles (Barford 1990, 81 and pers. comm.). This interpretation could gain further credence if, by analogy with the Red Hills' red earths, the site's 'pink pits' also related to heated salt production. However, and as discussed in Brudenell's study below (see also Note 15), while Williams in his 1980 thin-sectioning report thought that the local clays and brickearths tended to be coarser in texture than the site's Late Bronze Age pottery, the composition of the sampled salt equipment was 'fairly similar' to that of the brickearths; this, therefore, could indicate the on-site manufacture of these pieces. Note that, despite Williams' caveat concerning the quality of the local clays for potting purposes, the above-cited notebook refers to 'potters' waste pits'. In relationship to the listed functions of the clay pits (see above), this makes it likely that some degree of pottery production occurred within this area during the Late Bronze/Early Iron Age.

A group of 12 cremations was found extending across a 10 × 20m swathe east of Barrow 6 (2363–2422N/722–763E). They were assigned a prehistoric date by the excavators, although no specific dating evidence appears to have been recovered from them. While not directly associated with other features, as the alignment of this cemetery better matched that of the RH107–9 & 117 'line', as opposed to the area's preceding fieldsystem, they have, if somewhat tentatively, been assigned to the Late Bronze Age (see Chap. 4, Note 48 concerning the enormous span – and, therefore, ambiguous attribution – of unurned cremation rites).

All of the cremations had been placed within small pits, usually circular and around 0.3m across (Table 3.1). The quantities of preserved bone varied from traces to just under 400g. None is sufficient to indicate that all of the remains from a complete adult corpse were interred; however, it is likely that they were at least partially truncated by ploughing and the box scraper. It is also worth noting that the preservation conditions for human bone at Mucking were very poor, which means that that a substantial quantity of bone is likely to have been destroyed by post-depositional taphonomic processes. The surviving bone is all coloured white, indicating that it has been completely burnt at high temperatures.

The group has an interesting demographic profile: seven of the cremations were of children, whilst the remaining five were adults. It is rare to see such high proportions of children in prehistoric burial contexts (although child mortality would have been high) and this may indicate some special selection process. A note of caution is necessary here, however, as some of the cremations identified as belonging to children are recorded as containing only traces of bone. This makes the fact that all cremations have apparently been successfully aged a little suspicious.[4]

As outlined in Chapter Two, two cremations

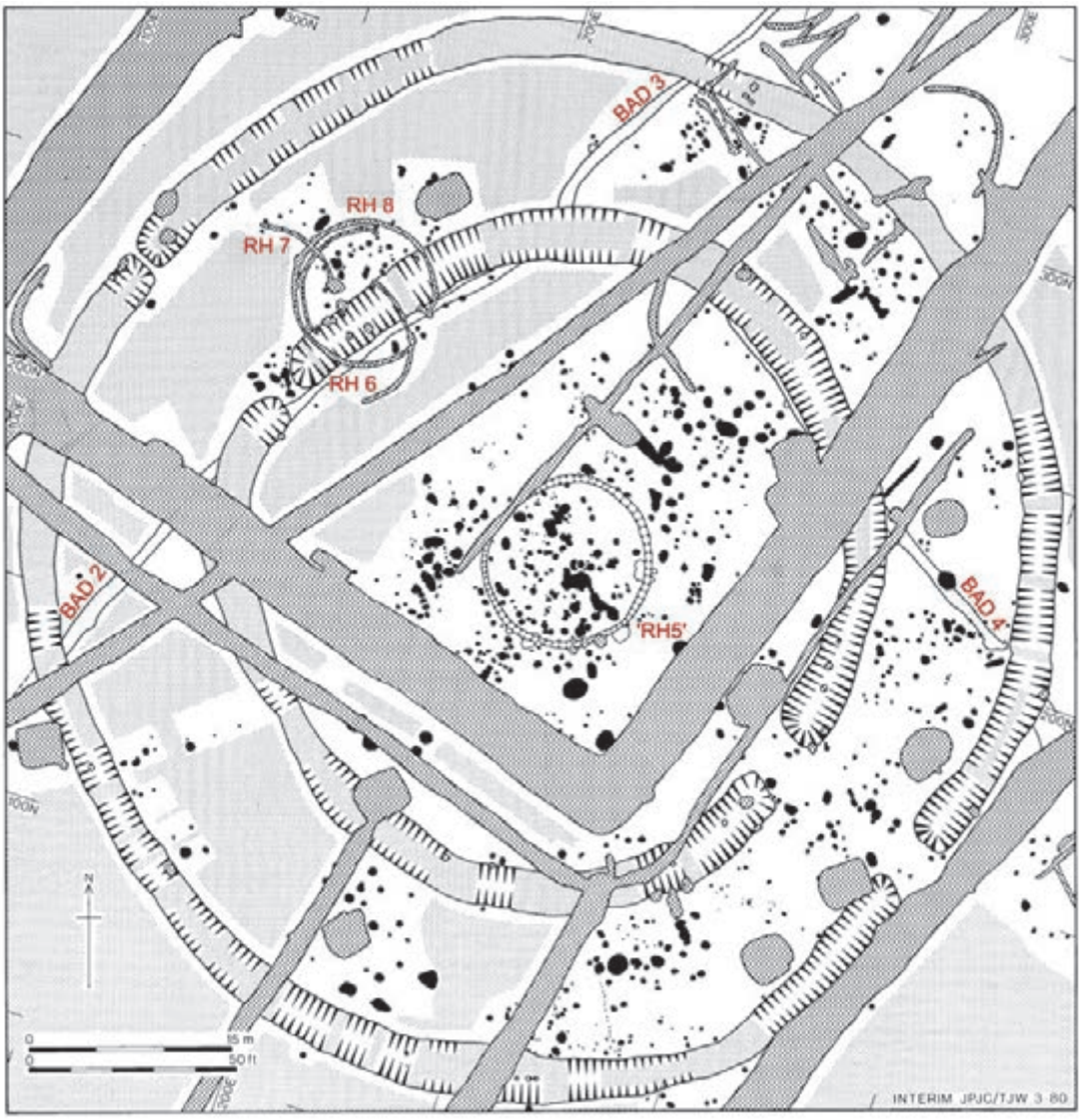


Figure 3.11. South Rings-area, annotated interim base-plan (1980), with grey-tone indicating areas of non-feature recovery.

within Barrow 6 might also relate to this cemetery. While these were undated, much Late Bronze Age pottery was reported from the upper fills of that barrow's ditch, with the same also apparently true of Barrow 2's circuit.

Based on the analyses above, aside from the cremation cemetery, three 'clusters' can be postulated for the North Field's Late Bronze Age occupation:

1) The main site-north swathe, lying southeast of the cremation cemetery and overlapping with Barrows 4 and 5 (Figs. 3.6 & 3.8). Aside from including the three 'definite' roundhouses (Nos. 107–9) and the possible candidates RH117–20, some 16 'Poster Structures' also fell within it and the Area B salt-making complex was associated.
2) This would lie immediately east of Barrow 2; it includes the features within the area of the later North Enclosure (RHs 99 & 120), as well as including at least some of the 'poster structures' south of it (Figs. 3.6 & 4.48).
3) Located southwest of Barrow 6 and along the site's extreme northwestern margin, this essentially consisted of the Area A salt-making complex and adjacent pits (Fig. 3.6).

THE SOUTH RINGS (with John Etté)

As is apparent in Figure 3.11, when compared to the other excavated enclosures of this type, the South Rings can certainly not be considered 'pristine'. Its area was severely truncated and disturbed by later features: Iron Age roundhouses, Romano-British ditch systems and Anglo-Saxon *Grubenhäuser* (see, also, Figs. 1.1 & 3.1). Nor was its machine-stripping ideal, entailing the removal of minor features (as indicated by surface-area stippling on Fig. 3.11). It was also dug in the early years of the project when, in effect, the excavators were still 'finding their feet'

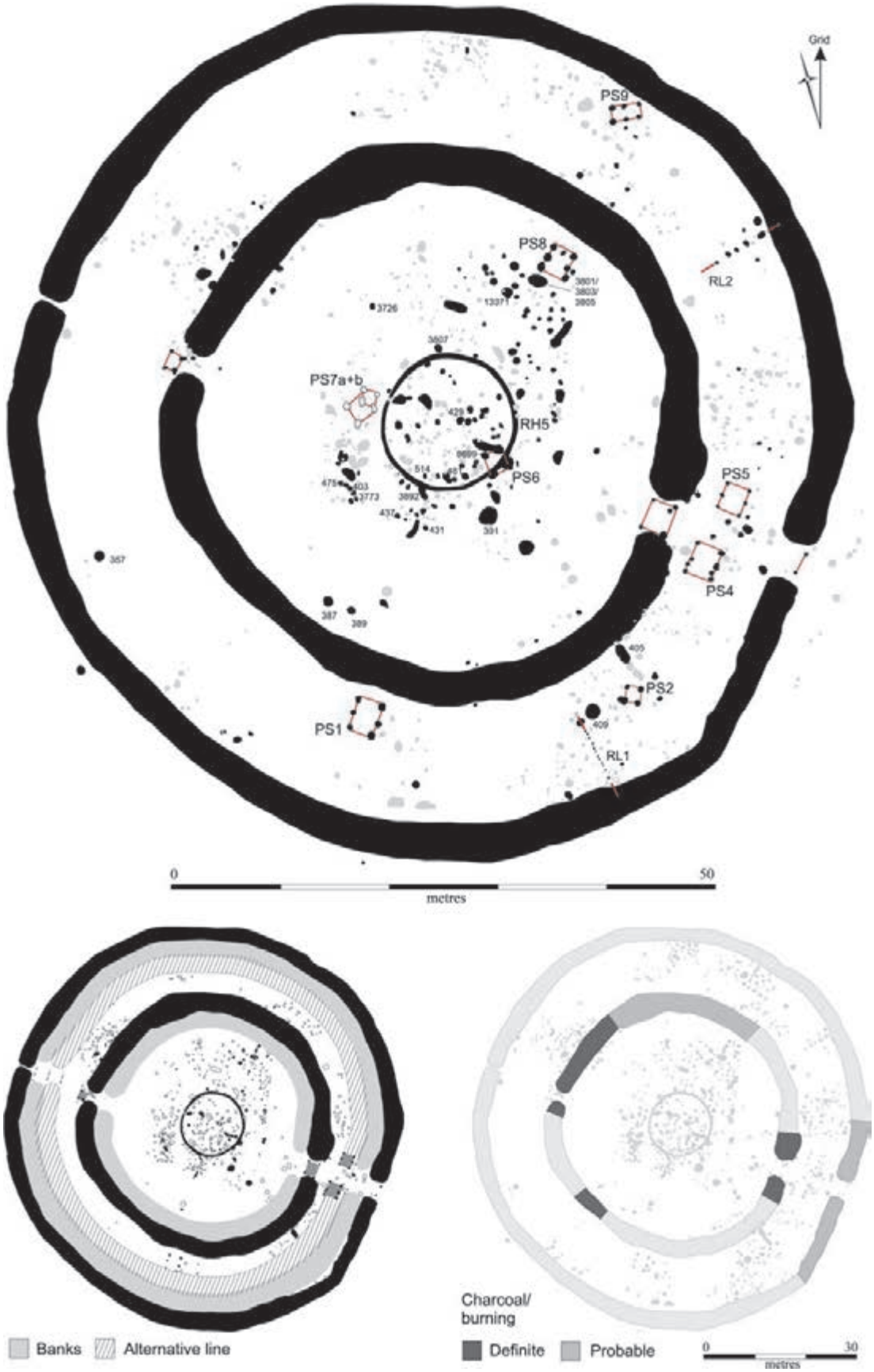


Figure 3.12. South Rings: top, base-plan with Late Bronze Age-attributed features indicated (enumerated discrete features indicate those producing more than 500g of pottery: see Fig. 3.20); bottom left, proposed bank locations; bottom right, areas of burning/charcoal.

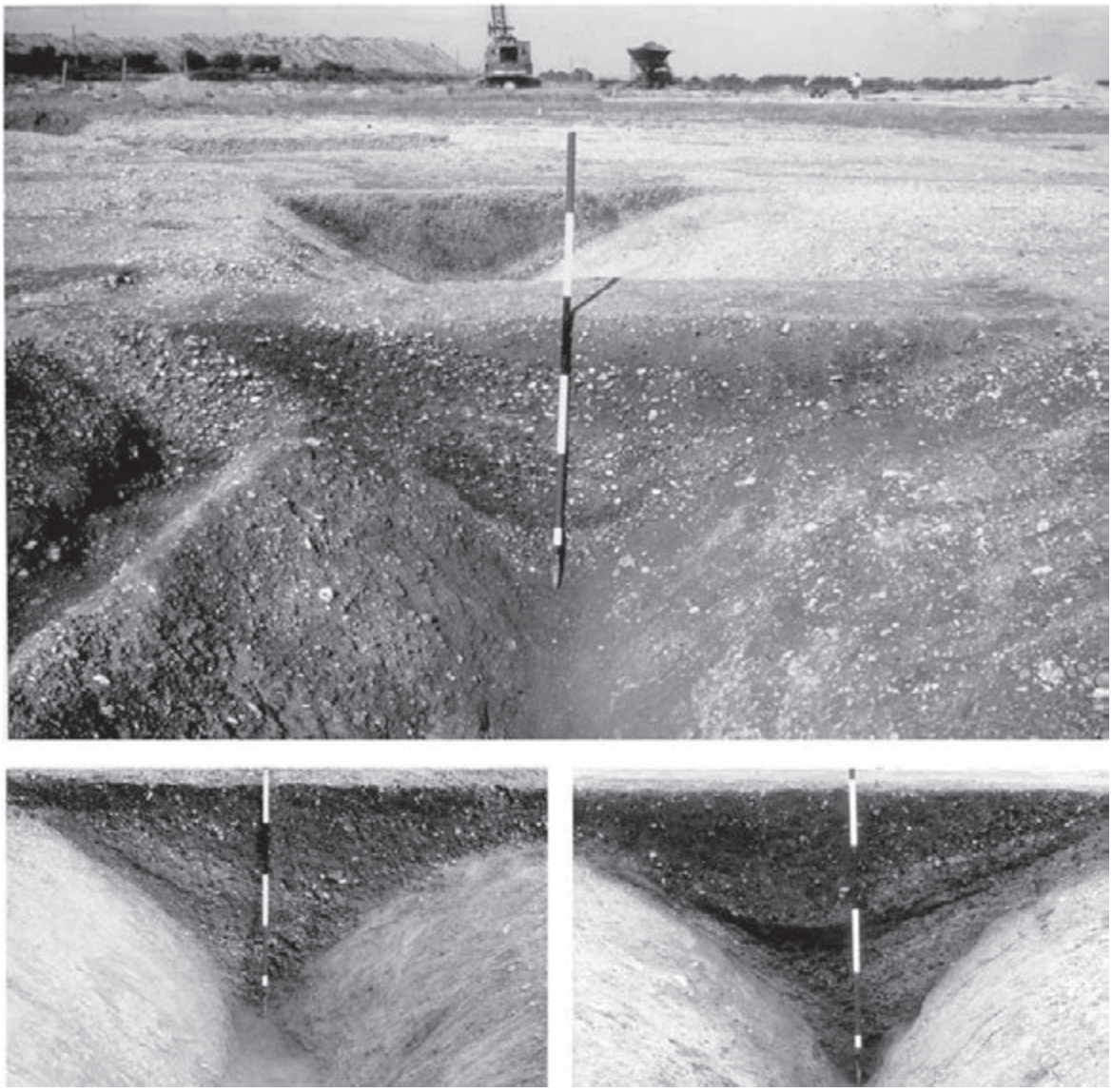


Figure 3.13. Photographs of ditch circuits: top, inner circuit recutting Middle Bronze Age fieldsystem ditch left (BAD 2); below, outer circuit sections.

in terms of excavation technique and annual quarry 'pacing'. This, indeed, evidently took its toll and machining was not fully controlled throughout. Some areas had to be rapidly abandoned to the quarry, with some ditch segments largely obliterated through quarry over-machining and the lower fills of others left undug; whereas, in other portions, there was apparently sufficient time to return to bottom lengths originally left underdug.

In consequence, the enclosure's excavation does not seem to have seen the same degree of recording and control as is evident in later years. This is apparent in the obviously incomplete and sketch-like character of its 'Phase Wall master' (Fig. 3.1). Even on the 'official' 1980 base-plan not all of its excavated segments were actually shown (Fig. 3.11); that had to await *The Atlas* rendering and further demonstrates just what an effort its assembly entailed.

All this means that this is not the enclosure to turn to for nuanced excavation and that much of its interpretation is fraught with ambiguity. Because so much of its circuit was dug (if in a rather irregular segment-pattern; cf. Fig. 3.20 & 3.25.1), it certainly provides major insights concerning large-scale depositional dynamics. Yet, due to the poor survival of its economic data and, also, its differential recovery of small interior features, this is not the enclosure that will illuminate the subtle 'daily life operation' of such ringworks. It will, therefore, here be approached from a broad patterning perspective and interpreted informed by the results of subsequently excavated enclosures of

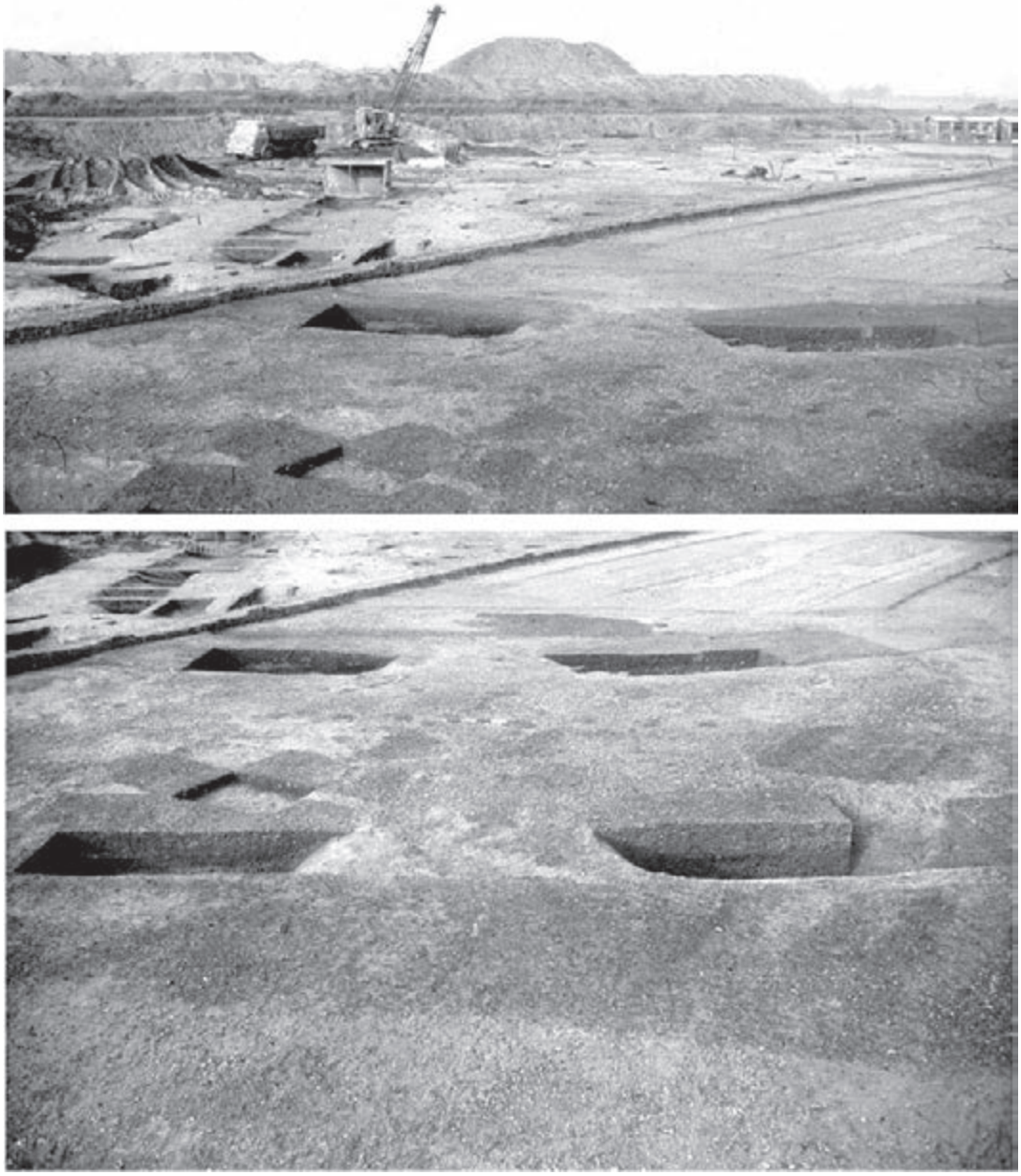


Figure 3.14. South Rings, southeastern entranceway terminals (looking northwest).

this type.[5] Accordingly, finds-distributional plotting will feature in its presentation. This is not only to further the above-stated 'patterning' aims, but also in demonstration of just what Mucking's records are capable of – something we think that the Joneses would have thoroughly approved.

The ringwork's basic dual-circuit layout was straightforward (Fig. 3.12). Its inner circuit was 45.0–48.5m in diameter (ditch centre-to-centre; 46.5m average), whereas the outer was 72–76m across (generally 74–75m); there being a 10–12m wide berm between the two (*c*. 11.5m ave.). Both ditches were generally 0.9–1.3m deep, being shallowest along their northwestern aspect and, immediately adjacent to the southeastern terminals deepened to 1.35–1.5m (inner) and 1.5–1.7m (outer). The inner ditch was generally wider, *c*. 4.0m (2.5–5.4m), as opposed to the outer's 3.5m (2.5–4.0m); each had 'V'-shaped profiles, with the outer circuit's being much steeper.

Set on a southeast–northwest axis, there were aligned entranceways between the circuits on both of its aspects (Table 3.2).

Given what seems to have been the period's predominant orientation generally there can be no doubt that the enclosure's 'front' was southeastward. This is indicated by its far greater width, flanking ditch-depth and associated entranceway structures (see below). In fact, as is apparent on Figures 3.12

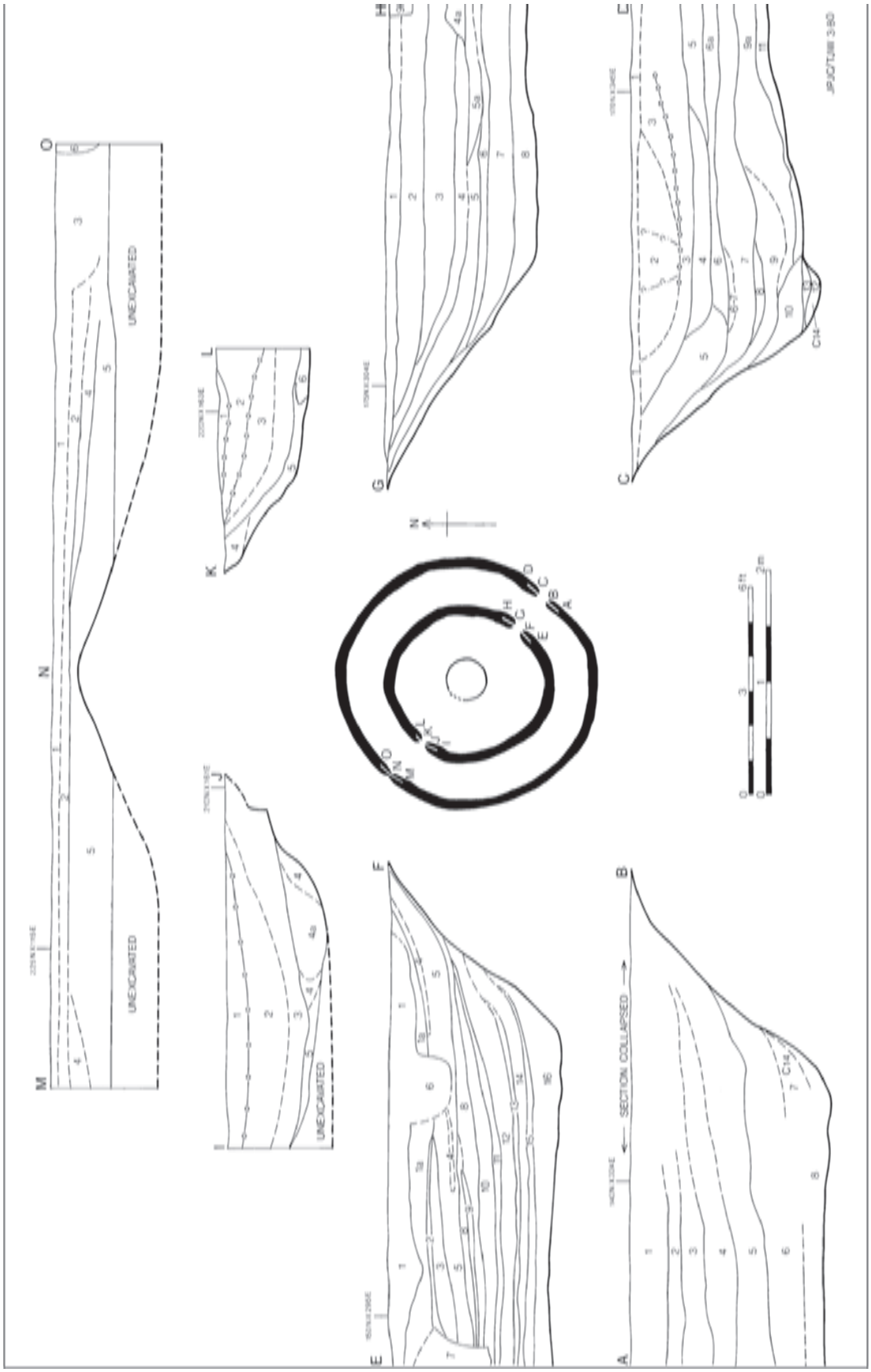


Figure 3.15. Longitudinal ditch circuit-entranceway sections.

Table 3.2. South Rings entranceway widths.

	Southeast	Northwest
Outer	3.90m	0.60m
Inner	3.30m	1.80m

and 3.15, to all intents and purposes, there was essentially no access across the outer circuit's northwestern entranceway 'divide'. Perhaps only eradicated throughout recutting, any associated embankment may have been continuous at that point. The identification of the enclosure's southeastern frontage would find further confirmation in the fact that the outer circuit there flattened markedly on either side of the entranceway. As shown on the 1980 interim plan (Fig. 3.11), it was then thought that this was due to the line of a very substantial Middle Bronze Age ditch. Subsequent post-excavation showed this to be a mis-attribution and, rather, that it was of Romano-British date. A slight ditch running roughly parallel some metres east of it (BAD 5/F. 3452) may, indeed, be of such early attribution (see Chap. 2, Fig. 2.35), with perhaps the ringwork's front flattening in relationship to an associated embankment.

As to the fill sequences of the circuits, in both the lower third consisted of primary weathering/slip deposits; distinct, however, was the quantity of burning and charcoal within the base of the outer circuit's southeastern entranceway terminals. Above this, along the inner edges of the two ditches were deposits of sand and gravel that must represent bank slip and reflect the internal banks of both. Within the southeastern ditch terminals, especially those of the inner circuit, were thick charcoal deposits. These were most marked/intense on the southern side, where they included quantities of burnt clay. Indeed, the recovery there of a posthole at this level (Section E–F, No. 7) has even prompted speculation that it could reflect a burnt palisade or the like (J. Etté, pers. comm.). It should also be noted that traces of charcoal/burning at this level were also recorded in section around the northern half of the inner circuit, especially adjacent to its northwestern entrance.

In order to convey the character of the circuits' fills and their 'record', below their section descriptions are presented 'raw' (our amendments appearing in square brackets):

Figure 3.15

Section A–B - Outer Ring, West Butt
1) Sub-soil
2) Sand
3) Dirty gravel
4) Clean sand
5) Sand
6) Unrecorded
7) Charcoal*

*C^{14} samples taken from 7: AML [750430], HAR 1708.[6]

Section C–D - Outer Ring, East Butt
1) Sub-soil
2) Dark to light brown loam with many small pebbles; fill 307/3400
3) Similar to above, darker with more silt
4) Burnt layer with charcoal
5) Dark soil with charcoal, but less than above; fill 3401
6) Light brown/red gravel
7) Pebble fill, between 8″ and 11″, very loose causing side to fall in; fill 308
8) Gravelly fill
9) A light brown silt(?), very clean yellow sandy gravel; 9 and 14 hard clean sand
10) Area of much burning, large bits of charcoal; fill 309*
11) As 10 but not as much burning and charcoal
12) Burnt area with charcoal and large zones(?) of red*
13) Sand; natural
14) Very fine gravel and grit; natural

*C^{14} samples taken from 10 and 12: AML 750427, Mucking series 4 16534510 – too small; AML 750431 Mucking series 3 16534512, Oak/Willow = 820bc (2270 ±110 [bp]).[7]

Section E–F - Inner Ring, West Butt end
1) Fine ginger fill grading into 2 – dark humic loam, darker than most sub-soil, random pebbles, more pebbles at butt end
1a) As 1, but darker – affected by charcoal at base
2) Lens of red burnt daub or brick set in 3; daub overlies charcoal 11′6″–15′0″ – yet in between(?) two charcoal fill 7′0″–9′0″
3) Burnt later 3″ to 4″ thick at west side, 12″ at east butt – contains gravel line with daub and a good deal of charcoal
4) Charcoal as 3, up-cast by digging of posthole at 7 – base of late fill
5) A light grey gravel fill with small (stones) pebbles – top of primary fill
6) A small pit or posthole fill, fill almost the same as 1, but affected by charcoal at base of fill. Appears to be contemporary to 1 yet is darker, ? effect of charcoal impregnation from 3
7) A posthole cut through Ia but not 1. This cut through 3 and 4 and same to be thrown up. Ends in layer of large loose pebbles
8) A layer of small pebbles and large loose pebbles fallen from rampart
9) A fine grey silt old turf line
10) As 9
11) Primary silting, nothing found in this layer – greyish sandy
12) A layer of banded gravel, clean with small pebbles
13) As 9 and 10
14) A clean gravel with small pebbles
15) A banded gravel fill
16) Gravel

Section G–H - Inner Ring, East Butt
1) Ginger layer – dark brown sandy loam, late fill, rare pebbles, pebble line at base
2) Loam, dark, random pebbles, merging into 3, charcoal and red flecks

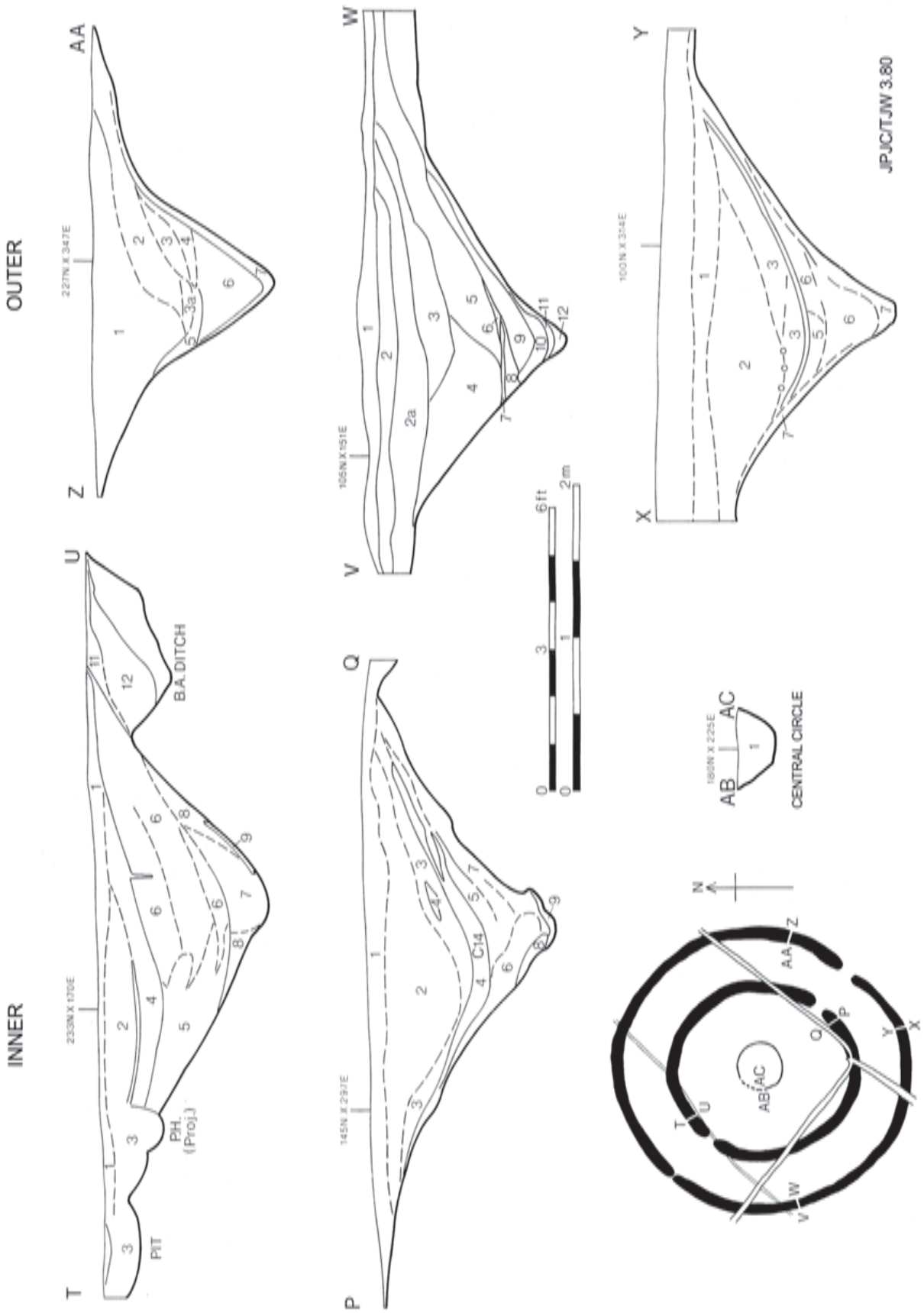


Figure 3.16. Ditch circuit sections.

3) Dark loamy clay, pebble line at base
4) Light brown red clay
5) Burnt layer; charcoal loam – seems to disappear at 1′ 0″ where it develops into a layer of (?) pebbles – layer 5A
6) Clean gravel, much ?, i.e charcoal ? at butt
7) Pebbles in a silt(?), large pebbles probably the same as in 5A, but with 5 & 6 interleaved, but only towards the butt
8) Primary fill – dirty sand, some pebbles
9) Red/brown raw clay; natural?

Figure 3.16

Section P–Q – Inner Ring
1) Brown loam, random pebbles; sub-soil
2) Dark grey/black unstratified sandy loam, sand and pebbles; fill 300/3519. This compares with the late back fills of more stratified sections of rings. Here, the charcoal line 4 is not only additional – it is sited within the early gravel fills
3) Dirty sandy loam apparently a gravelly fill impregnated from above by charcoal from 2; 9′6″–10′6″ line of charcoal fill
4) Very intense charcoal layer with occasional vitrified worm tunnels, but virtually pebble free, containing charcoal pieces and red flecks; fill 3520*
5) Apparently stratified sand and pea-grit with well defined base – occasional charcoal with runnels from above – 4; fill 301
6) Dirty grey sand and large pebbles lying(?) horizontally with rain wash from occupation outside the ring – not a typical layer; fill 302
7) Apparently stratified sand and pebbles getting larger towards the centre [collapsing bank side]
8) Clean sand – natural ex. situ – i.e. slipped side
9) Dirty grey silt – primary rain wash
*C^{14} samples taken from 4: AML 750426, HAR 14429351, Oak and Alder = 840bc (2790±90 [bp]).

Section T–V - Inner Ring
1) Pebbly loam (sub-soil?); fill 300?
2) Dark, pebble free loam with TL at base, i.e. pebble line within a brown deposit
3) Dark pebbly loam, apparently not a continuation of 2
4) Light brown clayey silt – not typical – is this a deposited clay weathered into a clayey loam. Pebble free. Apparent reddish areas in top of layer – could this be a loam weathered from imported clay?
5) Light grey/brown leached sandy loam and apparently stratified pebble interleaved with 6; fill 301
6) Stratified sand/pebbly loam with larger pebbles more frequent in the bottom, but not as clear, for example of re-sorting as in other sections, but more sand up-slope; fill 301
7) Stratified sandy gravel with large loose pebbles at bottom; fill 302
8) Clean sand and small pebbles – ?weathered sides; fill 302
9) *c.* 1″ thick line of reddened sand, charcoal on top. ?Does this relate to 10 – line of reddened pebbles overlying top of the ring ditch
10) Line of reddening/charcoal above 4 and impregnating it
11) Reddened pebbles – not much loam – apparently on edge of ring so probably associated with 9 – i.e. contemporary with digging of ring – of frequency of reddened pebbles inside inner ring [???]
12) Pebbly loam with large pebbles

Section V–W - Outer Ring
1) Medium brown soils and some pebbles; probably plough and sub-soil
2) Medium brown soil, few pebbles; fill 307
2a) As 2 but divided by a pebble line – not well developed; fill 307
3) Medium brown soil fill and sand and some grit; fill 307
4) Medium brown soil fill and some small pebbles; fill 3400
5) Light brown sandy layers and much pea-grit, separated from 6 by loam; fill 308
6) Clean sandy gravel lens; fill 309
7) Small pebbles; fill 309
8) Medium brown sandy soil fill; fill 309
9) Very charcoally fill and many loose medium pebbles; fill 309
10) Loose medium pebbles in sandy soil fill; fill 309
11) Dirty brown sand; fill 309
12) Loose pebbly fill; fill 309
13) Dark brown soil fill and sand; fill 309

Section X–Y - Outer Ring, 'Barley Edge' [see Fig. 1.1]
1) May be [a feature] of this arrangement of pebbles, but suggestion of late re-cut and could also be sub-soil
2) Medium grey brown sandy loam and random pebbles, possibly (slumped) weathering of deposit late rain(/) wash fills against outer bank of rest of other sections, but does not show any stratified turf lines. A 6′–7′ occasional pebbles and pea-grit; fill 307/3400
3) Sand – less dirty than 2, dirtier sand and pebbles presumed (slumped) weathering of rampart
4) Well defined charcoal line – continuous except for weathered sides, windblown ash and charcoal binding (?) what seems to be basically same deposit – i.e. weathered 'rampart' grading downhill from dirty gravel to sand
5) Gravelly area of 6 impregnated with charcoal, probably from charcoal layer above – i.e. this is the lowest point
6) Dirty sand with small gravel, large loose pebbles – weathering of 'rampart'; fill 308
7) Unstratified dirty sand and pea-grit, weathered sides – observed in open ring ditches after rain, i.e. primary slip before sand 'panned'

Section Z–AA - Outer Ring
1) Brown loam with pebbles; fill 307/3400
2) Pale orange brown, pebbly loam; fill 3400
3) Orange brown loam, few pebbles; fill 3400
3a) Dark orange brown loam, pebbly; fill 3400
4) Sand spread; fill 308
5) Orange-brown loam, few pebbles; fill 308
6) Many pebbles, orange brown loam; fill 308
7) Bright orange brown loam, few pebbles; fill 309

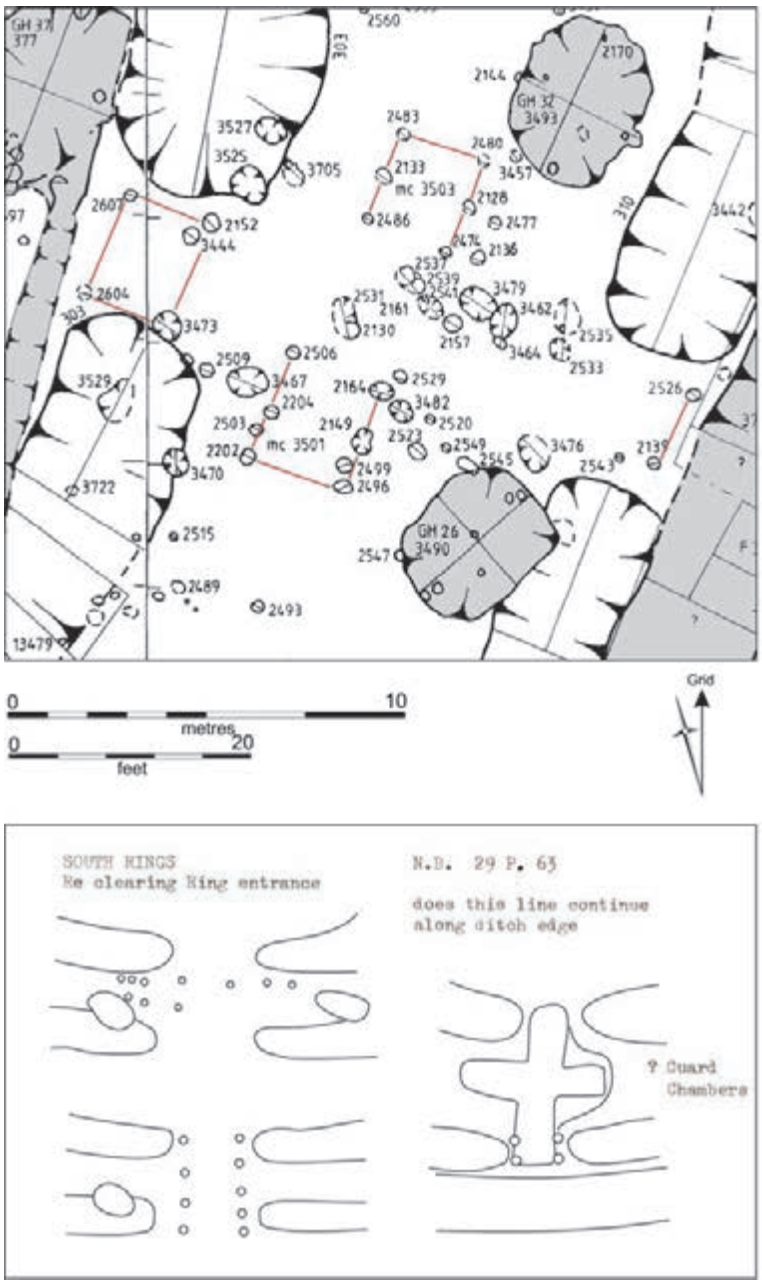


Figure 3.17. Southeastern entranceway: top, base-plan; below, notebook sketches of alternative entrance structure arrangements.

The vast majority of the finds occurred within the enclosure's inner ditch and, in almost all cases, most came from its upper profiles (see *Distributions* and Brudenell, below). As will be further discussed, the crucial issue for understanding the sequences of the circuits is whether they were equally maintained and directly contemporary, or if the outer was a secondary construct; if so, did the inner then become redundant? Particularly relevant in this regard is whether the outer circuits saw an equivalent to the burning documented in the middle/upper profile of the inner ring at the southeastern entranceway – was it the higher burning horizon in the northern terminal section (Fig. 3.15; C–D, Fill '4') or the dense charcoal deposits in the base of both it and the southern terminal?

The distinct clay layer with a scorched surface and the accompanying pit and posthole shown in Section T–U – located just north of the inner circuit's northwestern entrance (Fig. 3.16) – must clearly relate to unrecognised subsided floor surfaces associated with the later, Iron Age roundhouses at that point (Fig. 3.11). By the same reasoning, the upper level features within the top of the southern terminal of the inner circuit's southeastern entranceway (Section E–F; Fig. 3.14) were presumably of Anglo-Saxon attribution.

The evidence of what structures had earlier

been identified within the ringwork needs now to be reviewed (Fig. 3.12). In addition to the series of intercutting Iron Age roundhouses truncating the northwestern arc of the inner circuit (Nos. 6–8; Fig. 3.11), this includes two, somewhat spurious four-posters (PS7a & b) that lay along the western side of the central feature swathe and which, if 'real', are likely to have been of the same general attribution.

More significant for our immediate purposes are two six-post settings located immediately within and without the inner circuit along, respectively, its northern and southern sectors:

PS1 (2.3 × 3.3m) - Postholes 401, 441, 495, 497, 499 and 501
PS8 (2.2 × 2.3m) - Postholes 2455, F. 2456/13397, 3849/F. 2457, 13362, 13364 and 13368.

Another such setting, lying on a different alignment just inside of the outer circuit to the north, may actually have been of pre-ringwork attribution:

PS9 (1.2 × 2.5) - Postholes 2103, 2105, 12754, 13469, 13471 and 13473.

East of PS1 was another four-poster, whose pottery definitely indicates a Late Bronze Age date:

PS2 (1.2 × 1.5m) - Postholes 415, 467, 468 and 471.

(Another, identified within the area of 'Roundhouse 5' itself, PS6, was evidently of Iron Age date.)

Two other six-posters were identified as relating to the enclosure's main entranceway 'control' structures (PS4 & 5); the further evidence of their arrangement should now be outlined. Defined by postholes 2604, 2607, 3444/2152 and 3473 (Fig. 3.17), a four-'square' setting (*c.* 3.0 × 3.7m) can be identified within the gap between the inner circuit's terminal, which may attest to a gateway. More obvious were the two identified six-posters that flanked the entranceway 'corridor' and lay within the berm between the two ditches (Fig. 3.17). The northern (PS5) consisted of postholes 2128, 2133, 2474, 2480, 2483 and 2486, which defined a 3m square; on the south side, postholes 2149, 2164, 2202, 2204, 2496, 2499, 2503 and 2506 outlined a 3.0 × 3.7m rectangle (PS4). These would appear to define entranceway 'side-chambers' and, based on precedent, may either have lain within or immediately behind the enclosure's bank terminals. An array of small pits and postholes extended east of this point along the sides of the 'corridor' and, again, these may have marked the end of its bank. Postholes also occurred between the outer circuit ditch terminals – particularly, 2139 and 2526 – which may have related to some manner of gateway. On the 1980 interim plan (Fig. 3.11), another possible four-post setting was shown at the inner circuit's northwestern entrance. Though apparently not formally allocated a gazetteer designation in post-excavation and of quite small dimensions (0.8 × 1.4m), it is conceivable that this related to access-control on this side; if so, it would however have lain forward of the ditch-line and not between its terminals.

Figure 3.18. Inner circle photographs: top, looking northwest; below, looking northeast.

It is difficult to distinguish any obvious structural patterning amid the constellation of small features within the enclosure's interior. While, as shown on Figure 3.19, a few 'arcing' alignments seem apparent, none amount to a full post-ring; the two postulated north of the central 'circle' are very fragmentary and tentative. That being said, the enclosure's interior was dominated by the near-perfect circle of 'Roundhouse 5', which lay almost dead-centre within it. Its 'U'-shaped gully was *c.* 0.5m wide and 0.23–0.4m deep, *c.* 12m in diameter (Figs. 3.18–19), and was filled with medium to dark brown loam with only a few pebble inclusions. While truncating at least two pits of the period, it appeared to both cut and be cut by postholes. (Over 655 sherds of Later Bronze Age pottery were recovered from its ring and there can be no doubt of both its period and its ringwork association; see Brudenell, below.) The three quasi-concentric post-rings identified at this point must attest to at least two phases of the central roundhouse. The two exterior arcs are probably equivalent to each other and suggest a building 12.45m in diameter. Lying inside the 'trough-circle' and having a projected diameter of *c.* 9.85m, it may well be the case that the

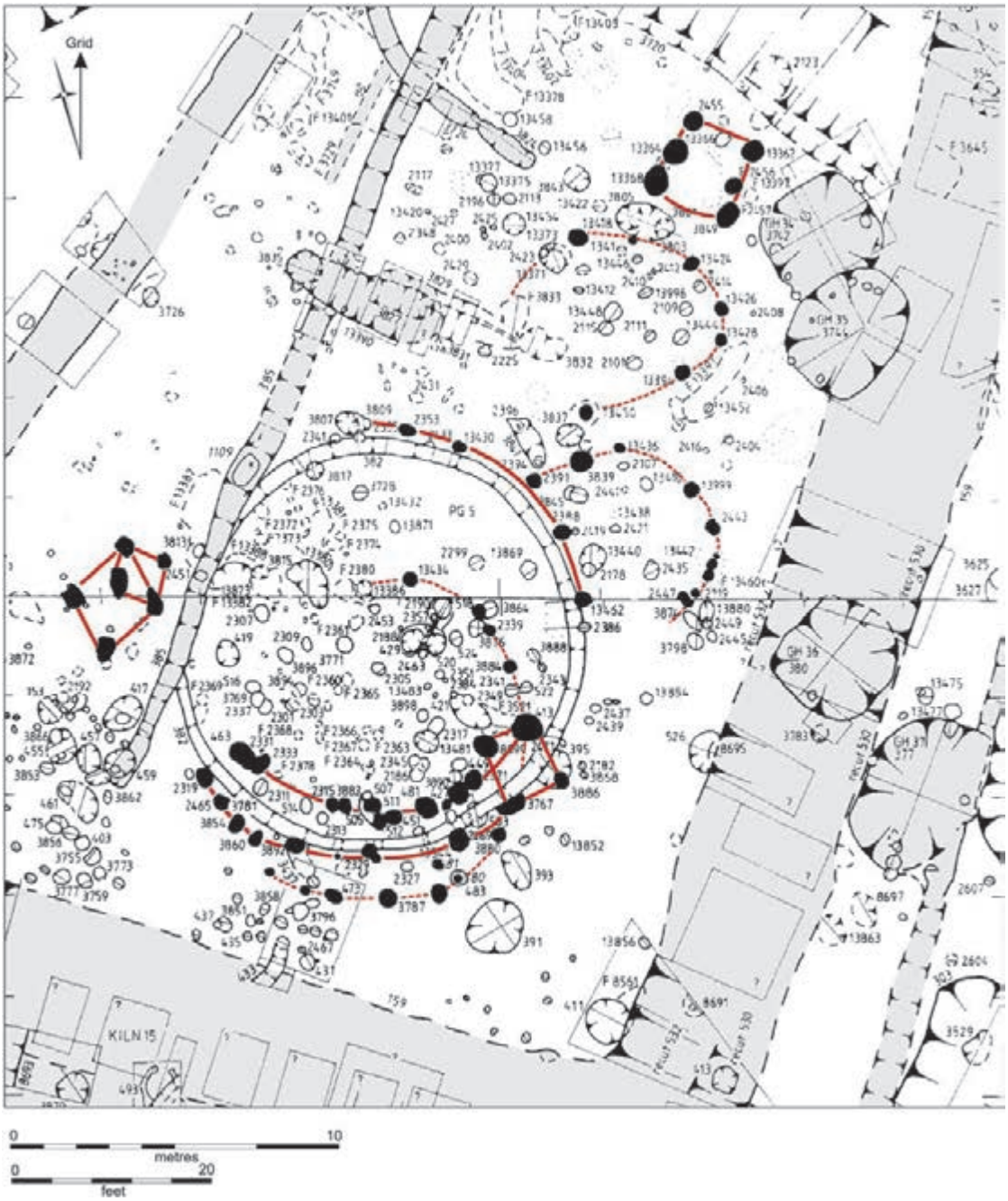


Figure 3.19. Inner circle-area, base-plan.

interior arcs were the structural features that carried Roundhouse 5 *per se*. Although if pushed, associated entrance-porch settings could be proposed, there really are no obvious candidates for such.

As also shown on Figure 3.19, yet another, somewhat smaller (*c*. 9.3m diam.) post-ring arc can be postulated, overlapping the southern two-thirds of Roundhouse 5's 'circle'; if 'real', this probably predated it. Taken as a whole, the majority of these postulated structural postholes were 6″–1′6″ deep (*c*. 0.15–0.45m), though a few were apparently as much as 2′4″ deep (*c*. 0.7m).

As outlined above, the 'circle' of Roundhouse 5 can only be counted as an unusual feature. Clearly an open gully, the vast majority of the period's roundhouses are without any such ditched 'surrounds' and, for example, Springfield Lyons, Mucking's North Ring and South Hornchurch's buildings were all without such. What is unparalleled is that it had formed a complete 'circle' and this even invites other explanations; perhaps, some manner of shrine, cairn-like setting or mortuary-related ring-ditch. With regards to the latter, no associated interments were recovered (the two cremations along its southern

exterior – Nos. 80 & 81 – being Romano-British) and, moreover, it would then have to be a very late variant on an earlier, Middle/later Bronze Age tradition. Although a satisfactory alternative interpretation does not therefore recommend itself, for the above reasons and through the formality of its spatial relationship to the enclosure's circuits, this may well have been something other than a 'period-standard' roundhouse.[8]

In all truth, there is relatively little point in pushing the analysis of the enclosure's interior much further. With the majority of its small features lost across its western third due to quarry-related disturbance (Fig. 3.11) – the same sector where, for example, the majority of both the North Rings and Springfield Lyons' associated buildings occurred – it is simply impossible to nuance its layout, sequence and 'operation' in any meaningful manner. All that really warrants mention is that none of the pits were particularly large, with the majority being 0.5–1.1m across and 0.25–0.5m deep. Four 'clay' pits (0.78–0.99m diam. and 0.23–0.3m deep; steep sides with flat bases) occurred within the Rings' circuits, as did the same number of definitely period-attributed 'pink' pits (plus three undated; Fig. 3.6). Of the latter category, however, the fills of three of the poster structures were also characterised in this manner (PS1, × 6; PS2, × 3; PS4, × 1) and it would appear that, in these cases, such distinct matrix deposits had been re-used as post-packings.

Before outlining the site's assemblages, any evidence for the enclosure's bank and any revetment should be addressed. With only limited slippage observed within the sections of the main circuits, there is little direct basis on which to determine the exact line of their accompanying embankments. If we presume that the embankment of the inner ditch lay immediately inside its line (perhaps being turf-revetted), there is greater ambiguity concerning that of the outer circuit. With alternative locations indicated on Figure 3.12, there seem to be two possibilities. It might have lain midway between the two ditches; the main entranceway's side-chambers (PS4 & 5) would then have been 'encased' within the bank's terminals. Alternatively, it may have been almost flush against the edge of the outer circuit. This would make it comparable to Springfield's bank, where a ring of double-set catwalk-supporting postholes evidently marked its interior side.

There were, unfortunately, no unequivocal timber settings to indicate the line of the South Rings' banks, although, at two points within the between-circuit berm, lines of stake-/postholes extended from its outer ditch approximately midway into the interior. Indicated as RL1–2 on Figure 3.12 (see also *Atlas* Plan 3 for detail; another such line in the north, 13465, appears to relate to a later timber building), if, as it seems likely, these radial lines were bank-related, then they could hint at a quite different mode of bank-revetment from Springfield's and one more akin to an internal timber/'wattle-box' pattern. Given this, it is thought that the outer, near-ditch bank-line option is the more likely. If so, this would then have left a *c.* 5.0m-wide berm between its interior side and the inner circuit. Like the inner circuit's bank, its line would then still have sealed Late Bronze Age-phased features and, therefore, attested to pre-ringwork occupation of that date. Nevertheless, in this position two of the major between-circuit pit deposits – 405 & 409 – would then have been free of any bank-cover (i.e. potentially be contemporary with the ringwork), as would Structure PS1's six-poster, which may have supported some manner of shed-structure set hard against the outer bank's edge. By the same token, Structure PS8 in the north may have actually been a shed-like setting 'embedded' within the bulk of the inner circuit's bank.

Alternative explanations for these two structures could also be envisaged. Although respectively located inside and outside the line of the inner circuit, it is certainly noteworthy that not only would they fall on roughly the same northeast–southwestern alignment, but that their axis would effectively have bisected that of the ringwork's entrances. While no ditch causeway-crossings occurred in conjunction with these two settings, it is conceivable that they were gateway-related and controlled inner circuit-access at those points. In which case, comparable to Springfield's multi-axis entrances, the inner circuit would either had to have been bridged or, else, their causeways were subsequently re-cut away. Though certainly remaining a possibility, here we have opted for the more ready interpretation of these structures as sheds.

As to the distinction of the extent of any broadly contemporary 'open' settlement within the immediate vicinity (see Fig. 3.3), it needs again to be reiterated that localised over-machining and the resultant loss of small features greatly curtail this effort. Possible structural candidates seem apparent, which include two four-posters west of the Rings proper (68N × 349E & 164N × 466E), and an arc of postholes at 150N × 383E suggestive of a roundhouse. Indeed, more dense occupation may well be attested within 'the background' of the Romano-British paddocks immediately to the northwest; however, given the records/evidence, at this time it is essentially impossible to articulate this further. Mention should also be made that, along the extreme southern edge of the site, more than 60 Late Bronze Age pottery sherds of pottery were recovered from a 'slight depression' (2067; 200N × 340E), but which could not be fully investigated due to the location of a quarry haul-road.

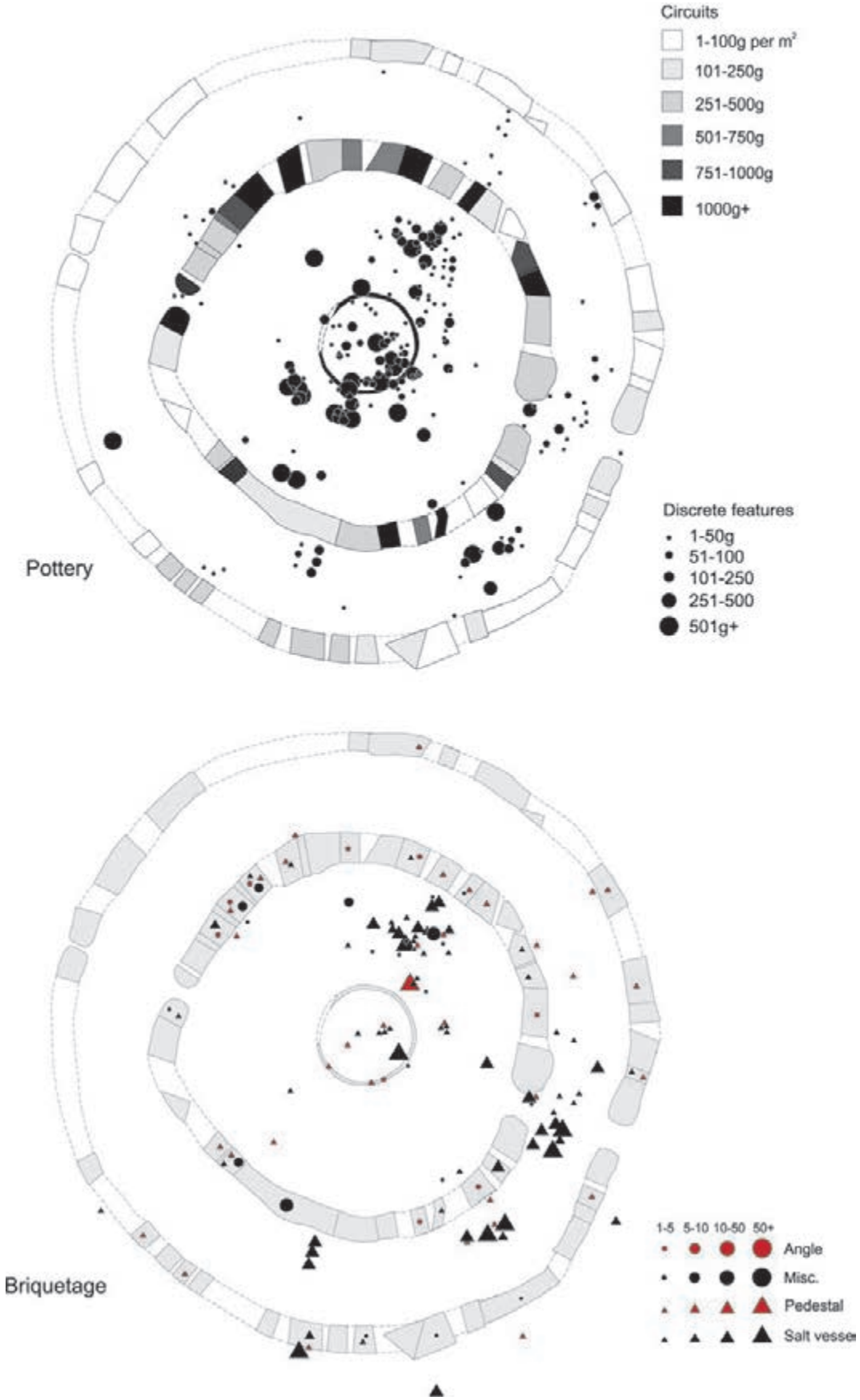


Figure 3.20. Distributions: Pottery and briquetage.

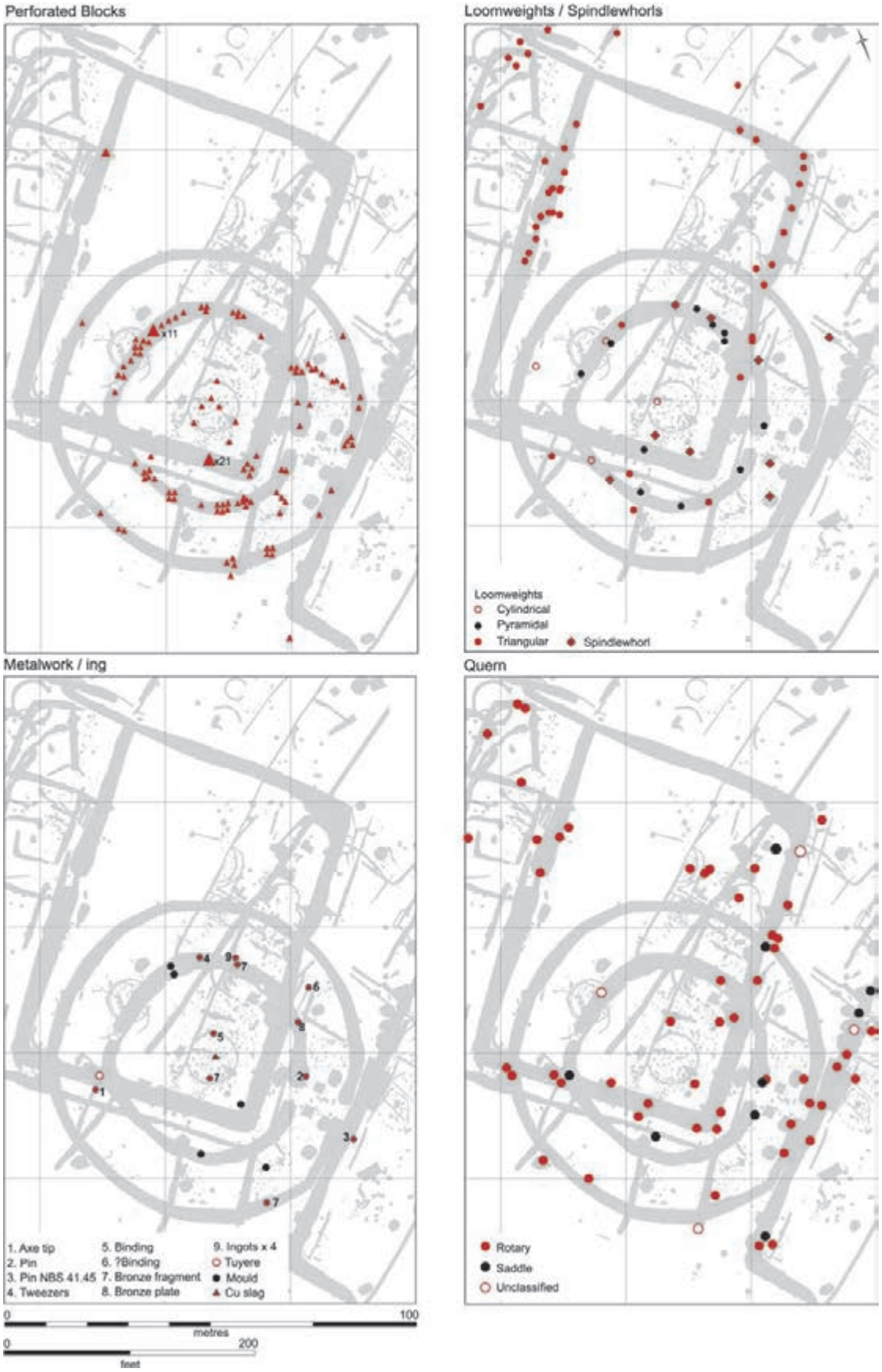


Figure 3.21. Distributions: Perforated slabs, loomweights, spindlewhorls, metalwork, metalworking materials and querns.

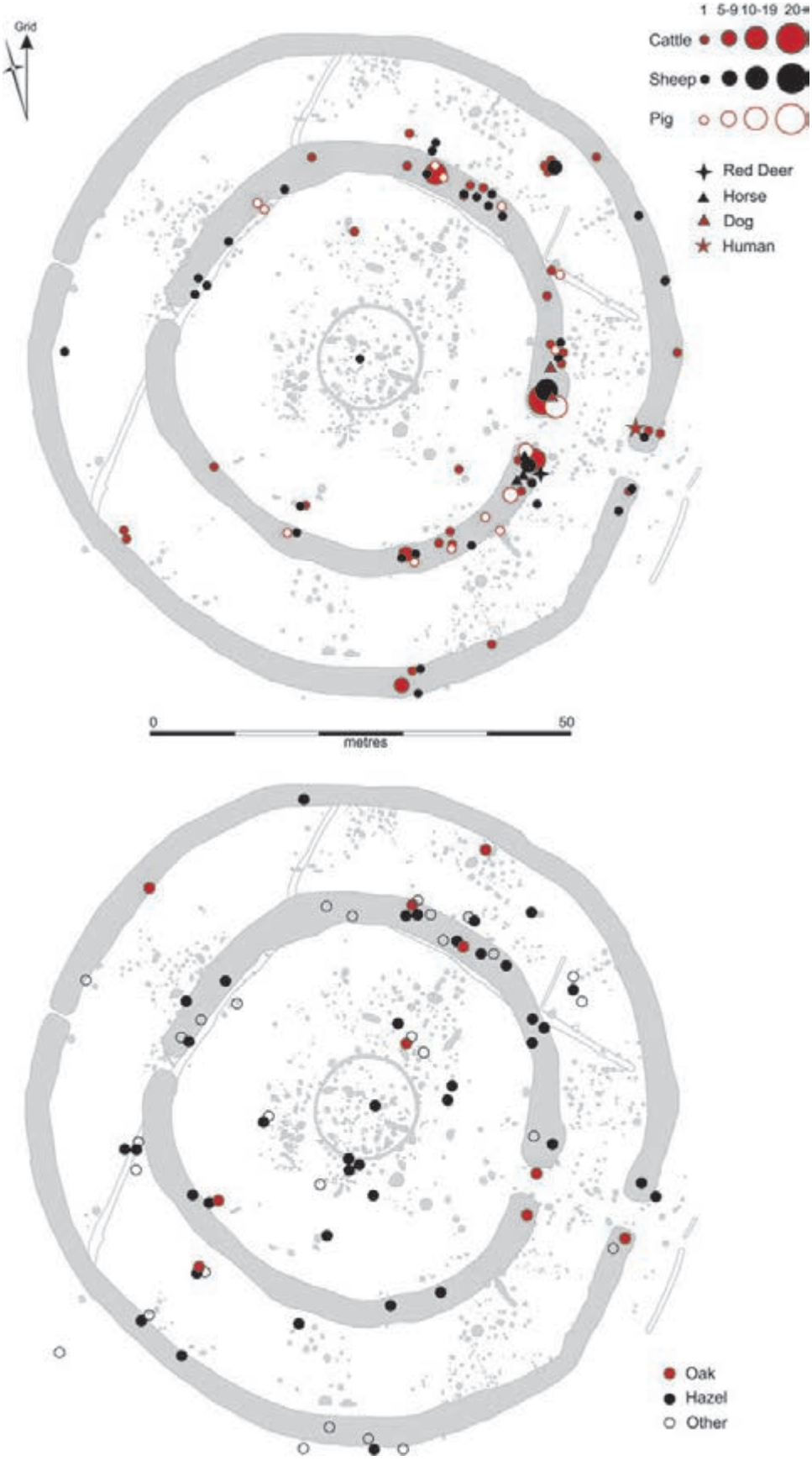


Figure 3.22. Distributions: animal bone and charcoal species.

Distributions

In all finds categories the density of material was far higher in the enclosure's inner circuit than its outer. There is nothing surprising in this. It simply reflects that the focus of its associated settlement was confined within the area of the interior circuit and correlates with the fact that more than 5000 sherds of pottery (48,421g) were recovered from some 248 features therein (Fig. 3.20). The explanation for why some features of the period occurred between the ditch circuits (and within the area of postulated line of the inner circuit's bank), must essentially relate to a pre-Ringwork Late Bronze Age occupation; in which case, some of the interior features could also have been of that attribution.

As shown on Figures 3.20–22, trying to analyse the broader finds distributions in greater detail is curtailed by the circumstances of excavation. In the case, for example, of the high pottery values consistently recovered along the inner circuit's northwestern sector, the fact that the interior features were lost across the western third of the ringwork means any relations between circuit and small features cannot be established.

The most obvious correspondence of the pottery (Fig. 3.20) is that between the entranceway terminals of the enclosure's southeastern front; this must reflect discard related to access or movement. More intriguing are the relatively high values that occur across the outer circuit's southern sector. Although the inner ditch values are not particularly high at this point, one might speculate that the intervening length of the bank had been levelled and that deposition took place unimpaired by it. Alternatively, this might attest to the deposition of material deriving from outside the ringwork itself along that side (for a more nuanced consideration of the site's pottery distributions see Brudenell below).

Though clearly different, in many respects the plotting of the briquetage is complementary (Fig. 3.20). Its outer circuit distribution is largely restricted to the southern side and only extends north to around the southeastern entrance. Within that sector alone it occurs within features between the two circuits: the Structure PS1 six-poster, within the enclosure-entranceway features and, also, the pit/posthole cluster between the two. If anything, this distribution would suggest that the salt-related material recovered from this aspect pre-dated the construction of, at least, its outer circuit and related to a south-lying settlement swathe (see, though, above as to whether these features may have lain free of the outer circuit's bank and, therefore, have possibly been contemporary with the ringwork).

Little of the briquetage within the inner circuit and its interior occurred in direct relationship to the 'circle' of Roundhouse 5 or in the southern half of that zone generally. In contrast, values were high along the inner circuit's northwestern arc and within the pit/posthole cluster (including the six-poster, PS8) immediately north of the innermost 'circle' (essentially matching the pottery in those areas). Why briquetage, particularly salt vessels, should be associated with the site's six-posters is unknown. In the case of Structures PS1 and PS8, it could suggest some function for them other than granaries, such as perhaps meat-curing sheds/racks or even the drying of briquetage. The same would not, however, be true of the southeastern entranceway's side-chambers (nor if, as discussed above, PS1 and 8 were themselves entrance-related). Its occurrence there is puzzling. This is all the more so as no briquetage appears to have been recovered from the ditch terminals at that point. However, quantities of what was designated 'structural daub' were present in the fills of the inner circuit's terminals, especially the southern. (Though this material was unplotted, in total, some 26kg was recovered from ringwork-associated features.) Consisting largely of blocks/sheets of fired clay, a relationship is suspected with the briquetage from the side-chambers but, as matters stand, this cannot be further elucidated.

Both metalwork and metalworking debris also follows the basic distributional trend and was largely restricted to the inner circuit and its interior (Fig. 3.21). It is noteworthy that the one piece of copper alloy slag found came from a pit within the centre of Roundhouse 5's circle. Moreover, a mould fragment occurred in the 'between-circuit' pit 409, which could be the only direct evidence of pre-ringwork metalworking *per se*. (Again, though, depending upon which outer circuit bank-line option is accepted, it might have been contemporary with the ringwork.)

Very little animal bone was recovered from the site's 'small features' and, once more, the vast majority was recovered from the inner circuit; what little was found in the outer had a distribution not unlike the briquetage, though was somewhat more concentrated across the eastern front-sector generally (Fig. 3.22). Like the pottery, it mainly occurred in the ditches' middle/upper profiles and the topmost six spits (87%). However, unlike the pottery's inner circuit distribution, it largely fell within the eastern half, with little present in the northwestern sector (with much there evidently deriving from the Middle Bronze Age ditch-line). Why the deposition of bone should differ so markedly from the pottery is unknown.

The only further point to stress about the animal bone is that the highest densities were in the terminals of the inner circuit's southeastern entranceway (Fig. 3.22). It was only at that point, moreover, that the site's non-main domesticates occurred – dog, horse and red deer – which may reflect a degree of intentional deposition. The only other obvious possible correlates to this were the saddle querns found in both butt

Table 3.3. Flint from the South Rings area.

Circuit	Flake	Blade	Blade-like	Spall	Core	Other
Inner Ring (ditch)	38	1	7	7	4	1 denticulate 2 awls 3 scrapers
Outer Ring (ditch)	13	1	4	1		2 knives 1 scraper 1 awl
Innermost 'Circle' (RH5; ditch)	1					1 scraper

ends (Fig. 3.21) and, of course, the only occurrence of identified human remains within the Rings: a skull fragment within the northern butt-end. It is perhaps relevant that, aside from the copper alloy pin from the north terminal (which may well have been an 'incidental' find), metalwork evidently did not play a major role in depositional practices. Certainly there was nothing comparable to the dumped moulds within Springfield Lyons' terminals (Needham & Bridgford 2013).

Finally, Figure 3.22 also shows the plotting of the identified charcoal. Because, however, it seems not to have been collected on a systematic basis, this distribution is unlikely to be particularly meaningful and, essentially, has been depicted only to highlight the limitations of this data-set.

To be frank, given the state of the recording, there is little to be gained by attempting any close-grained analysis of Roundhouse 5's (*et al.*) distributions. It is worth stressing that material associated with what can be considered the ringwork's two most characteristic activities – salt production and metalworking – did occur, if in low numbers, within its interior features and demonstrates a direct linkage with the ringwork's occupation.

Material Culture

All of the South Rings' finds categories are reported below (to various degrees), with Roberts' reappraisal of the metalwork and Brudenell's pottery report being the only newly commissioned studies. The latter report also includes an overview of the ceramics from the northern 'open' settlement area, just as the fired clay study similarly covers the findings from the site as a whole.

Flint Elizabeth Healey

A minor quantity of flint was recovered from the ditches of the South Rings (Table 3.3) and the adjacent area. The material is mainly grey, pebble flint. The assemblage is small and not suitable for statistical analysis, but it is clear from inspection that flakes predominate and that there is a virtual absence of a blade technology. The cores are globular or indeterminate. The retouched forms include awls, scrapers and a denticulate, though none of these are particularly diagnostic and datable forms. A number of pieces exhibit edge-damage, but it is not clear whether this is residual.

In view of the date of the South Rings it is important to establish whether the flint could be contemporary and included a later Bronze industry as seemed to be present at the North Ring (Bond 1988, 23–55). Middle/Late Bronze Age flintwork is differentiated from that of the Neolithic–Early Bronze Age by a tendency for the flakes to be squat and thickish; a higher proportion have cortex remaining on the dorsal surface and end in terminations. Retouched forms diminish in variety; there appears to be an increase in awls/piercers with Middle Bronze Age industries. A number of the flakes do have cortex and some end in hinge termination; the retouched forms could be contemporary, but will eventually need reconsideration in light of the rest of the assemblage.

Late Bronze Age Pottery Matt Brudenell

A substantial quantity of Late Bronze Age pottery was recovered. This report is based on the analysis of 11,099 sherds of pottery (140,259g, EVE 67.12) recovered from select slots through the South Rings, features internal to the rings, and a range of other pits, postholes and post-built roundhouses located in the north of the site.[9] As outlined above, the exact quantity of Late Bronze Age pottery recovered from the excavations as a whole remains unknown, though the total must exceed 344kg (see below). To date, this is the largest assemblage of Late Bronze Age pottery from Essex; the only county in East Anglia to have produced an abundance of Late Bronze ceramics, and more importantly, clearly stratified sequences of ceramics deposited in deep ditch contexts.

The report concerns material quantified during the

Table 3.4. The Late Bronze Age pottery fabrics and their relationship to burnishing.

Fabric group	Fabric	No./Wt. (g)	MSW	% of the assemblage by Wt.	No./Wt. (g) of burnished sherds	% of fabric burnished
Fine flint	1	116/588	5.1	0.4	70/363	61.7
	2	535/3509	6.6	2.5	353/2342	66.7
	3	633/6587	10.4	4.7	327/2808	42.6
Medium flint	4	653/5393	8.3	3.8	204/1507	28.0
	5	2102/23,353	11.1	16.6	584/5472	23.4
	6	1243/16,352	13.2	11.7	163/1581	9.7
Coarse flint	7	901/12,228	13.6	8.7	131/1265	10.3
	8	1429/19,724	13.8	14.1	149/2073	10.5
	9	571/8542	15.0	6.1	40/497	5.8
	10	370/4698	12.7	3.3	37/423	9.0
	11	879/19,274	21.9	13.7	139/1193	6.2
	12	138/2692	19.5	1.9	9/290	10.8
Very coarse flint	13	158/2055	13.0	1.5	7/126	6.1
	14	273/4173	15.3	3.0	22/246	5.9
	15	68/875	12.9	0.6	1/13	1.5
Flint and other inclusions	16	46/504	11.0	0.4	5/39	7.7
	17	42/614	14.6	0.4	6/140	22.8
	18	346/3239	9.4	2.3	104/1046	32.3
	19	234/3679	15.7	2.6	4/20	0.5
Sand and quartz	20	13/116	8.9	0.1	4/50	43.1
	21	27/186	6.9	0.1	7/50	26.9
	22	60/254	4.3	0.2	9/83	32.7
	23	1/ 2	2.0	<0.1	1/ 2	100
	24	36/133	3.7	0.1	14/62	46.6
	25	118/715	6.1	0.5	47/301	42.1
Grog	26	1/ 5	5.0	<0.1	-	-
	27	18/250	13.9	0.2	3/33	13.2
Vesicular and organic	28	12/182	15.2	0.1	-	-
	30	8/41	5.1	<0.1	1/12	29.3
	31	43/189	4.4	0.1	-	-
	32	6/24	4.0	<0.1	-	-
	33	14/29	2.1	<0.1	-	-
?	?	5/54	10.8	<0.1	-	-
TOTAL		11,099/140,259	12.6	99.7	2441/22,037	15.7

EH/BM phase of post-excavation. The methodology for sampling and recording the pottery was designed by John Etté, who implemented much of the initial data analysis. The fact that the results of this process can be presented here, over 20 years after the EH/BM phase of post-excavation ceased, is credit to the exceptional data-set produced; a resource of relevance to prehistoric pottery specialists across southern Britain. The records themselves were recovered from computer files, and required a certain amount of interpretation and re-ordering. None of the original data has been altered, though new fields were added where simplification was required. Unfortunately, certain alphanumerical codes could not be deciphered, particularly those relating to the sub-divisions of form and zones of surface treatment. This, however, has not significantly impeded the analysis.

This report is organised into three sections. The first gives an overview of the Late Bronze Age pottery analysed during the EH/BM phase of post-excavation, the aim of which is to describe the basic characteristics of the assemblage, in terms of fabrics, forms, surface treatment and decoration. As with the Middle Iron Age pottery report (see Brudenell, Chap. 5), emphasis

is placed on the quantification and presentation of data, with explicit reference to sherd and vessel numbers, rim and/or base EVEs (estimated vessel equivalents) and overall weights. The second part of the report compares and contrasts the composition of different sub-assemblages, including those from the ditches of the South Rings, the features internal to its rings, and the 'open' settlement features in the north of the site. This is then followed by an analysis of pottery distributions within the South Rings, incorporating some of the data held in the paper archive, but not in the computerised data-base. In addition, there is a detailed analysis of pottery across the stratigraphic sequence of ditch deposits, which provides the key to the chronology of the South Rings.

Following the catalogue of illustrated vessels, the third section is devoted to discussion. It gives a brief summary of the findings, followed by a consideration of the South Rings assemblage and its relation to the pottery recovered from other major ringwork sites and contemporary enclosures, principally Mucking North Ring (Barrett & Bond 1988) and Springfield Lyons (Brown 1987a and 2013), but also Lofts Farms (Brown 1988b) and South Hornchurch (Harrison 2000).

Characterising the Assemblage

Fabrics

Thirty-three fabrics were identified in the assemblage, the descriptions of which were taken directly from the archive. The fabrics belong to eight basic fabric groups, defined by the type and modal size of the inclusions (Table 3.4). The assemblage was dominated by sherds containing burnt flint inclusions, as is usual in Late Bronze Age PDR assemblages (Needham 1996a, 245). By weight, 48% of the pottery contained coarse flint, 32% contained medium flint, 8% had fine flint and 5% had very coarse flint. The remaining 8% of the assemblage was shared between the 'minor' fabric groups – including those tempered with flint and either sand, grog, quartz or organic inclusions (6%), sand and quartz fabrics (1%), grog-tempered fabrics (<1%) or vesicular and/or organic fabrics (<1%). The range of fabrics appears broadly comparable to those from the Mucking North Ring, where coarse flint-tempered fabrics also dominated the assemblage (Mucking North Rings Fabric Group D – flint-gritted/coarse fabrics; Barrett & Bond 1988, 27). During MPX, sherds from both sites were submitted to David Williams for petrological examination, along with samples of clays and brickearths from the site (archive report, Williams 1980). Forty-five sherds were thin-sectioned from Mucking, most of which derive from the South Rings. The majority were found to contain varying grades and densities of flint and sand, with a background of mica and iron ore. Unfortunately, it is unclear how the nine groups identified by Williams relate to the fabric series produced during the EH/BM phase of post-excavation. Nevertheless, the conclusions reached by the report indicate that there was a high probability that the pottery had a fairly local origin, with tempering agents such as flint being readily available from the local gravels. However, Williams notes that the clays and brickearths submitted for analysis tended to be much coarser in texture than the pottery (see Barford & Mainman, below).

Fine flint fabrics
1. Occasional flint inclusions up to 1mm in size
2. Moderate flint inclusions up to 1mm in size
3. Frequent flint inclusions up to 1mm in size

Medium flint fabrics
4. Occasional flint inclusions up to 2mm in size
5. Moderate flint inclusions up to 2mm in size
6. Frequent flint inclusions up to 2mm in size

Coarse flint fabrics
7. Occasional flint inclusions up to 3mm in size
8. Moderate flint inclusions up to 3mm in size
9. Frequent flint inclusions up to 3mm in size
10. Occasional flint inclusions up to 4mm in size
11. Moderate flint inclusions up to 4mm in size
12. Frequent flint inclusions up to 4mm in size

Very coarse flint fabrics
13. Occasional flint inclusions over 4mm in size
14. Moderate flint inclusions over 4mm in size
15. Frequent flint inclusions over 4mm in size

Flint fabrics with either organic inclusions, grog, sand or quartz
16. Flint with sparse–moderate organic inclusions
17. Flint with sparse–moderate grog inclusions
18. Flint with sparse–moderate sand inclusions
19. Flint with sparse–moderate quartz inclusions

Sandy and quartz fabrics
20. Quartz-tempered fabric
21. Quartz and flint-tempered fabrics
22. Sand
23. Sand with glauconite
24. Very fine sand
25. Sand with sparse–moderate flint inclusions

Grog fabrics
26. Grog
27. Grog with sparse–moderate flint inclusions

Vesicular and organic temper
28: Vesicular with no clear temper
29: Vesicular shell?
30: Vesicular shell? with occasional–moderate flint
31: Organic voids
32: Organic voids with sparse–moderate flint
33: Organic voids with sparse–moderate sand

Forms

Late Bronze Age vessel forms were classified using a typology deigned by Etté. Vessels were divided into jars and bowls, and were assigned alphanumeric codes. The jars and bowls were divided into four basic shapes, according to whether they displayed globular, uni-, bi- or tripartite profiles (jars labelled A–D; bowls, E–H). These were then sub-divided along the morphology of the shoulder, neck

and rim; each variety being denoted by a number, e.g. C2. This gave rise to a total of 36 potential vessel types. The data-set also contains further sub-divisions, identified by a fractional digit, e.g. C2.1, though there is no information in the archive to suggest what these refer to.

Overall, this system of classification is too complex to allow patterns to be seen in the data. Put simply, there are too many potential types, meaning that most vessels have a unique combination of numbers and letters to describe their form. In some respect this reflects the true diversity of forms in the PDR ceramic tradition – each pot essentially being a 'one-off'. However, vessels were undeniably produced around a set of broad 'categories' or 'themes', each ultimately reducible to one of Barrett's five vessel classes (Barrett 1980). The degree to which we recognise or distinguish between these categories will inevitably affect how much variety in form we choose to expose or conceal. For the purposes of this report, an attempt has been made to re-categorise the EH/BM typology into the system devised by Nigel Brown for prehistoric pottery in Essex. The degree of division in this system of classification rests somewhere between that used in the EH/BH phase of post-excavation and 'base-level' categorisation recognised by Barrett (1980): an 'in between' level perhaps more akin to the types perceived in the Bronze Age. More importantly, this system is widely adopted in Essex and allows the Mucking data to be compared with other published assemblages from the county.

Essex Form Series

A. Jar, round shouldered with short upright or flared rim
B. Jar, hooked rim with smoothly curved body
C. Jar, bipartite, round or slightly angular shoulder
D. Jar, round or slightly angular shoulder with concave neck and everted flared or upright rim
E. Jar, slack shouldered with upright or slightly everted rim
F. Jar, tripartite, angular shoulder, flared rim
G. Bowl, round bodied, closed
H. Bowl, round bodied, open
I. Bowl, bipartite, angular
J. Bowl, tripartite, round shouldered, flared rim
K. Bowl, tripartite, angular shoulder, flared rim
L. Bowl, flared, open
M. Bowl, as H but with flared rim
N. Jar, as F but with upright rim
O. Bowl, bipartite bead rim
Q. Bucket

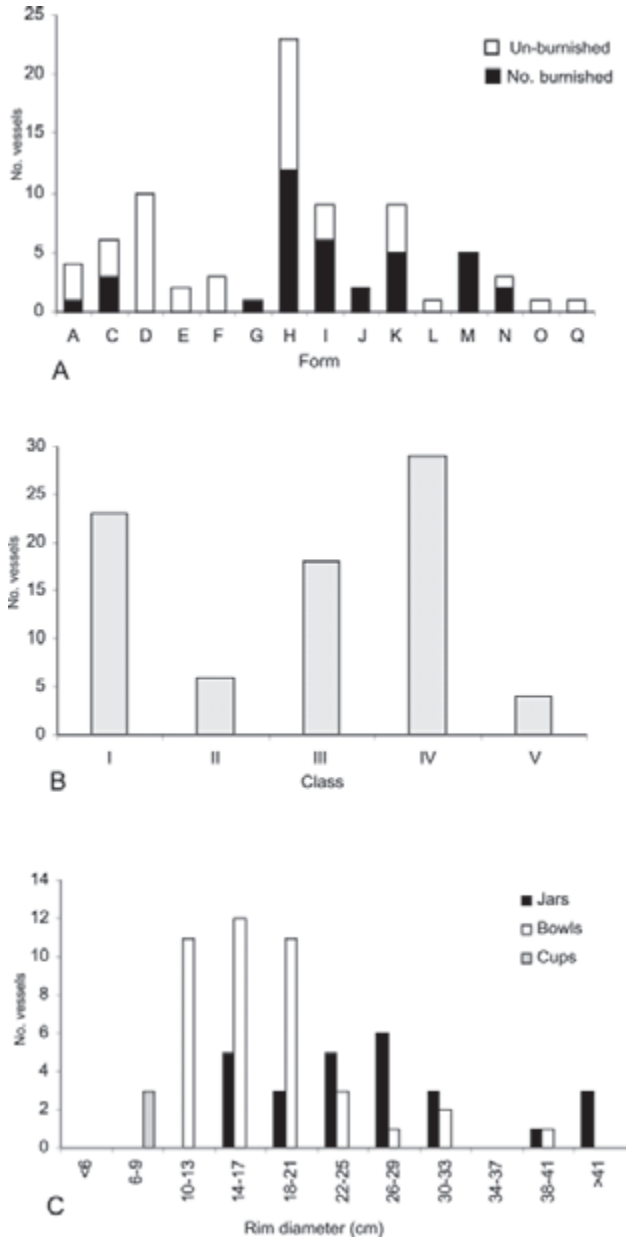


Figure 3.23. A) Vessel forms; B) Vessel classes (after Barrett 1980); C) Jar, bowl and cup diameters.

A total of 80 vessels were assigned to the Essex form series, the characteristics of which are described in detail below. The vessels comprised 450 sherds weighing 16,704g (rim EVE 9.30). Figure 3.23.A shows that Form H bowls dominated the assemblage, with modest peaks for Form D jars, and Form I and K bowls. All other vessel forms have limited representation. The high incidence of bowls can be represented graphically by ascribing the form-assigned vessels to one of Barrett's (1980) five major vessel classes: I, coarseware jars; II, fineware jars; III, coarseware bowls; IV, fineware bowls; V, cups (Fig. 3.23.B).

Jars

Jars were defined as vessels with a height in excess of rim diameter or maximum girth. The form-assigned vessels included 29 jars (254 sherds, 13,990g, rim EVE 3.25). In terms of fabric frequency, 66% of jars were made with coarse flint-tempered fabrics (19 jars, 198 sherds, 12,323g), 31% were made with medium flint-gritted wares (9 jars, 22 sherds, 1209g), and the remaining 4% had very coarse flint inclusions (one bowl, 34 sherds, 458g). Burnishing was present on six of the jars (Class II, 18 sherds, 738g); four of which were made with medium flint-gritted fabrics, the other two having coarse flint inclusions.

The jars were manufactured in a range of sizes and displayed rim diameters of 14–56cm. Figure 3.23.C compares the frequency of jar, bowl and cup diameters. The significance of these distributions is considered in greater detail below. Nevertheless, it is worth noting at this point that jars appear to fall into three size ranges, as indicated

by the peaks in the graph: small (between 14–17cm), large (around 26–29cm) and very large (around or above 41cm). In the following discussion, medium-sized jars are classified by rim measurement of 18–25cm.

Round shouldered jars (Forms A, C & D) – Twenty round-shouldered jars were assigned to form. The assemblage contained four plain Form A jars, totalling 51 sherds (1637g) with a rim EVE of 0.45. The jars included three Class I vessels (42 sherds, 1358g, EVE 0.35) and one Class II vessel (nine sherds, 279g, EVE 0.10). The burnished Class II vessel was made with medium grade crushed flint, and is classified as a small jar with a rim diameter of 16cm. The Class I vessels were significantly larger, with diameters of 32–56cm (large–very large vessels). These jars were made with medium, coarse and very coarse flint-gritted fabrics; the coarsest being used to make the largest jars. Six Form C jars were identified, totalling 157 sherds (9261g) with a rim EVE of 0.65. The jars included three Class I vessels (151 sherds, 8197g, EVE 0.40) and three Class II vessels (six sherds, 344g, EVE 0.25). The latter were made with medium and coarse flint-gritted fabrics, and had diameters of 18–28cm (medium–large vessels). The Class I jars were made exclusively with coarse flint fabrics, though their size range was broadly similar to the Class II jars (19–32cm; medium–large vessels). All three Class I jars were decorated; two displaying fingertipped rim-tops, the other having a groove around the rim.

The commonest type of shouldered jar was the Form D vessel. The assemblage included 10 Form D jars, totalling 33 sherds (2133g) with a rim EVE of 1.50. The vessels were all un-burnished Class I jars with rim diameters of 14–30cm (small–large). The jars were made in medium and coarse flint-tempered fabrics, though once again, the coarsest fabrics were used to make the larger vessels. Seven of the nine Form D jars were decorated. Five of the jar rims were embellished with fingertip/fingernail impressions; two with impressions on the rim-top, one on the rim-exterior, and two with raised fingertipped cordons attached to the rim. The sixth vessel had a fingertipped cordon applied to the girth, whilst the seventh jar was stabbed along the shoulder.

Slack shouldered jars (Form E) – Two Form E jars were identified in the assemblage, totalling two sherds (98g) with a rim EVE of 0.15. Both vessels were Class I jars, made in medium and coarse flint-tempered fabrics. The jars comprised medium- and large-sized vessels measuring 24–28cm in diameter. The smaller of the two jars was decorated with a single incised line around the neck.

Angular shouldered, tripartite jars (Forms F & N) – The assemblage contained six tripartite jars with angular shoulders. Three of the vessels were Form F jars, comprising three sherds (204g) with a rim EVE of 0.05. The jars belonged to Class I, and were made with coarse flint-tempered fabrics. All the jars had neck cordons; one was decorated with diagonal stab marks, one decorated by cabling, and one displaying fingertip impressions. The cabled vessel also had a row of finger-impressions on the rim-top. The jars were all large–very large vessels, though only one rim was measurable: 41cm in diameter. By comparison, the Form N vessels were significantly smaller, and had rim diameters of 16–22cm (small- to medium-sized). The three jars included seven sherds (155g), with rim EVE of 0.30. The jars were made in medium–coarse flint-gritted fabrics, none of which were decorated. Two of the vessels were Class II jars (five sherds, 85g, rim EVE 0.20).

Bucket-shaped jars (Form Q) – The assemblage contained single, bucket-shaped jar of Form Q, made in a coarse flint fabric (one sherd, 502g, rim EVE 0.15). The vessel was a very large, plain Class I jar, made with a rim diameter of 52cm.

Bowls

Bowls were defined as vessels with a height less than the rim diameter or maximum girth. The form-assigned vessels included 47 bowls (179 sherds, 2591g, rim EVE 4.85). In terms of fabric frequency, 43% of bowls were made with medium flint fabrics (20 vessels, 111 sherds, 1068g), 27% were made with fine flint (13 vessels, 36 sherds, 634g), 26% with coarse flint (12 vessels, 22 sherds, 823g), 2% had very coarse flint inclusions (one vessel, three sherds, 24g) and 2% had a mixture of flint and sand (one vessel, seven sherds, 42g).

Burnishing was present on 29 of the bowls (Class IV, 94 sherds, 1285g). These were also made in a range of fabrics, though 85% were made with fine–medium flint. The rim diameter of the bowls measured from 11–40cm, and as Figure 3.23.C shows, the vast majority fell within the 10–21cm range. These vessels can be classified as small- to medium-sized bowls, which dominate the assemblage. Although there are relatively few bowls which exceed 21cm in diameter, the slight peaks in the graph at 30–33cm and 38–41cm indicate that few large–very large vessels were produced. In general, however, it was the jars which dominated the larger size categories.

Round-bodied bowls (Forms G, H & M) – Round-bodied bowls dominated the assemblage, with 27 vessels identified. Twenty-one of these were open round-bodied bowls of Form H, comprising 41 sherds (932g) with a rim EVE of 1.90. The form encompasses a range of different shaped vessels produced around the round-bodied 'theme'. Following Brown (2013), the form could be divided into a number of sub-categories. For example, six of the vessels could be classified as 'open hemispherical bowls' (Brown's Form H.1: 10 sherds, 101g, rim EVE 0.30), whilst one vessel could be classified as a 'large globular bowl' (Brown's Form H.3: one sherd, 57g, rim EVE 0.05). At a more general level, the Form H bowls included 12 Class IV vessels, over half of which were made with fine–medium flint fabrics (28 sherds, 663g, rim EVE 1.15). However, coarse flint fabrics were also used, as were those with a mixture of flint and sand. Five of the bowls were decorated with grooved, incised and combed horizontal lines located at the shoulder and/or the neck exterior or exterior rim-edge. The Class IV bowls were all small- to medium-sized vessels measuring from 11–21cm in diameter. The nine remaining Form H bowls belonged to Class III (13 sherds, 269g, rim EVE 0.75). The bowls were all plain, and were made in a similar range of fabrics to the finewares, though some vessels were slightly larger, measuring between 12–32cm in diameter (small–large).

Form M is closely related to Form H, but is distinguished by the flared rim. The assemblage contained five Form M vessels, all of which belonged to Class IV (24 sherds, 227g, rim EVE 0.70). The burnished bowls were small- to medium-sized vessels, measuring 15–19cm in diameter, and were made with fine–medium flint fabrics. One of the vessels was decorated on the body with a series of combed

horizontal lines. The single Form G bowl was a closed Class IV vessel, comprising two sherds (23g) with a rim EVE of 0.15. The bowl was 12cm in diameter and made with medium crushed flint.

Bipartite bowls (Forms I & O) – The assemblage contained 10 bipartite bowls. Nine of the vessels were of Form I, comprising 17 sherds (303g) with a rim EVE of 1.10. The Class IV vessels included six Form I bowls made with fine–medium flint fabrics (11 sherds, 201g, rim EVE 0.80); one of which was decorated with combed lines on the outside edge of the rim. The bowls were of small–medium size with diameters of 12–19cm. The three Class III bowls were of similar size (11–20cm), though they were made with medium and coarse flint fabrics (six sherds, 102g, rim EVE 0.30). Decoration was restricted to a single Class III vessel which displayed an incised line on the body. The single Form O bowl was a very large unburnished Class III vessel, 40cm in diameter (two sherds, 97g, rim EVE 0.05); it was plain and made in a coarse flint fabric.

Tripartite bowls (Forms J & K) – Nine tripartite bowls were assigned to form. The assemblage contained seven Form K bowls, totalling 90 sherds (948g) with a rim EVE of 0.70. The bowls included three Class IV vessels (27 sherds, 134g, rim EVE 0.15), and four Class VI vessels (63 sherds, 814g, rim EVE 0.55). The Class IV vessels were plain, small- to medium-sized bowls with diameters of 13–22cm, all made with fine–medium flint fabrics. The Class II bowls, however, had medium–coarse flint fabrics, and were slightly larger, measuring from 16–30cm (medium–large vessels). Decoration was present on one of the Class III bowls and comprised a row of stabbed impressions on the shoulder. The Form J vessels are closely related to those of Form K, but are distinguished by the rounded shoulder and flared rim. Only two Form J vessels were identified in the assemblage, both belonging to Class IV (two sherds, 37g, rim EVE 0.15). The vessels were made with fine–medium flint fabrics, and had diameters of 16–24cm.

Flared open bowls (Form L) – The assemblage contained single flared bowl of Form L, Class III (one sherd, 24g, rim EVE 0.10). The vessel was made with a medium flint fabric, was 24cm in diameter and displayed fingertip and fingernail marks on the rim-top.

Cups

Cups were defined as very small vessels with diameters under 11cm. Four cups were assigned to form, comprising 17 sherds (123g) with a rim EVE of 1.20. Two of the cups were made with medium flint fabrics; one had fine flint; the other, a mix of flint and quartz. Two of the vessels were burnished.

Round-bodied cups (Form H) – There were two Form H cups in the assemblage (two sherds, 44g, rim EVE 0.45). Both were un-burnished vessels; one made with a mix of flint and quartz, the other with medium flint. The latter was 8cm in diameter and displayed an incised line around the body.

Tripartite cups (Form K) – The two remaining cups in the assemblage belonged to Form K (15 sherds, 79g, rim EVE 0.75). Both were plain burnished vessels, with rim diameters of 7–8cm, made from fine–medium flint fabrics.

Rims

Overall, form-assigned vessels represented only a fraction

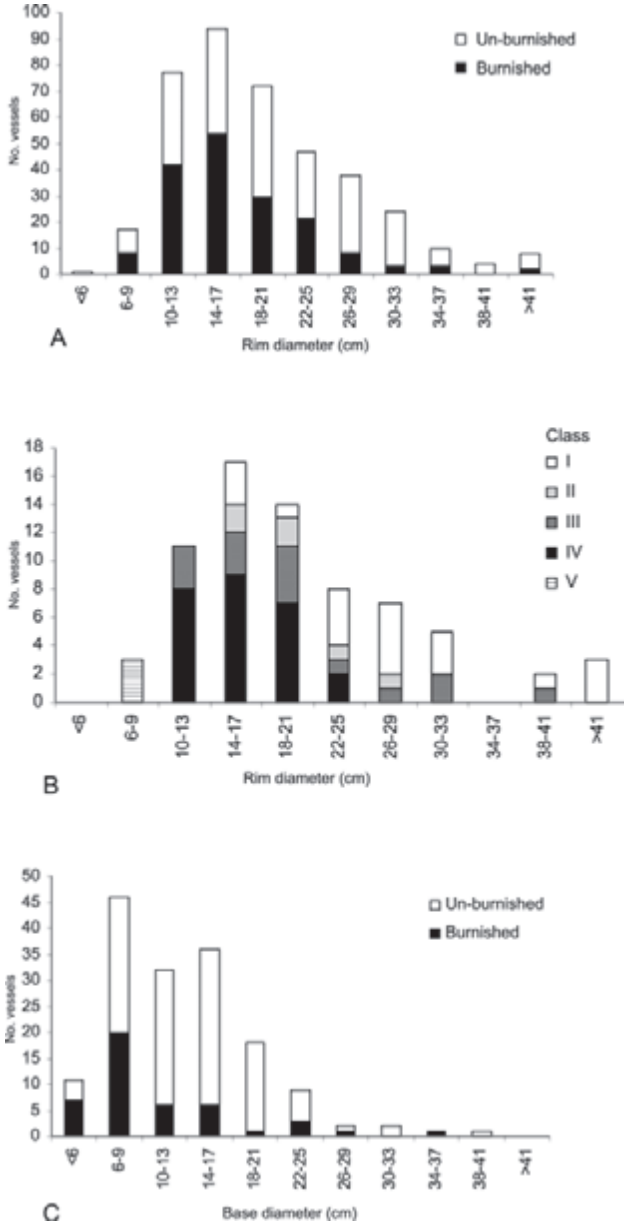


Figure 3.24. A) Rim diameters; B) Relationship between rim diameter and vessel class; C) Base diameters.

of the assemblage: 4.1% by sherd count or 11.9% by weight (combined rim EVE of 9.30). A more realistic indication of the total number of vessels is given by the rim count, 656 of which were identified in the assemblage (1168 sherds, 24,071g, 10.5% by sherd count). Although this count probably exaggerates numbers, given that some rims are likely to belong to the same pot, the figure does provide a broad estimate of the number of vessels analysed in this assemblage.

There were 392 measurable rims (860 sherds, 21,777g, EVE 31.07), displaying diameters of 2–56cm. No single rim was complete, and most were highly fragmented. Two hundred and sixty-eight rims retained less than 10% of their original circumference, whilst only six had over 50% intact. Figure 3.24.A shows that most vessels displayed diameters within the 10–21cm size range, with a quarter

Table 3.5. Quantification of pottery base forms.

Base category	Archive form	No./Wt. (g) of sherds	No. bases/ no. burnished	No. bases measurable/ no. burnished	Base EVE	Diameter range of bases/ burnished bases (cm)	Median diameter of bases/ burnished bases (cm)
Flat	A, B, C	318/16,451	90/28	67/22	14.75	4–31/5–26	12/8
Pinched	E, F,	33/2057	29/2	16/-	3.40	6–40/-	18/-
Stepped	D	89/4728	57/14	39/11	9.20	5–30/6–25	12/14
Beaded	J	34/1456	17/2	13/2	4.50	6–28/6–16	11/11
Omphalos	Q, G	40/446	14/7	11/6	2.85	4–20/4–10	8/6
Unassigned		27/561	12/4	12/4	1.35	5–35/5–35	10/6
TOTAL		541/25,699	219/57	158/45	36.05	4–40/4–35	12/8

Table 3.6. Pottery surface treatment.

Surface treatment	No. sherds	Wt. (g)	MSW	% of assemblage by count	% of assemblage by wt. (g)	Classification
Burnished	1907	17,165	9	17.2	12.2	Burnished (fineware)
Polished	534	4872	9.1	4.8	3.5	
Smoothed	5498	66,456	12.1	49.5	47.4	Un-burnished (coarseware)
Wiped	2698	48,456	18	24.3	34.5	
Rusticated	3	29	9.7	<0.1	<0.1	
Unidentified	459	3281	7.1	4.1	2.3	Unclassified

of all measurable rims falling within the main 'peak' at 14–17cm. The graph also reveals that burnishing was not restricted to any particular vessel size, but occurred on pots in all but one of the categories, including the largest vessels from the site (170 burnished rims, 299 sherds, 3638g, EVE 13.00). On the other hand, it is evident that burnishing becomes less frequent as the size of the vessel increases. For example, 57% of rims with diameters of 14–17cm were burnished. This had fallen to 44% in the 20–25cm size range, then 21% in 26–29cm range, and finally, 13% in 30–33cm range; at this point the pattern breaks down, possibly because of the small sample size.

Given the high frequency of small rimmed burnished vessels and the high frequency of Class VI bowls (Fig. 3.23.B), it is *likely* that most vessels with small- to medium-sized mouth diameters (10–21cm) belong to Class VI bowls. In addition, most large–very large vessels (over 25cm) probably belonged to jars, principally Class I coarseware jars. These suppositions can be 'tested' by examining the diameters of the form-assigned vessels.

Figure 3.24.B shows the distribution of these diameters by vessel class (Barrett 1980). Importantly, the overall shape of the graph mirrors that in Figure 3.23.B, meaning that the rim sizes of vessels assigned to form are largely representative of the sizes present in the assemblage as a whole. Patterns in this data will therefore reflect broader trends at the level of assemblage. The graph demonstrates that half the vessels with diameters of 10–25cm were fineware bowls (Class IV). These measured 11–24cm in diameter, with most clustering around 14–17cm. In total, 92% of the fineware bowls fell within the small–medium category (10–21cm). The Class II fineware jars displayed an equally narrow size range. The rims of these vessels measured from 16–28cm, with 67% having diameters in the small–medium range.

Un-burnished coarseware jars (Class I) were produced in the broadest range of sizes (14–52cm). Two-thirds of these are classified as large–very large (over 25cm in diameter), whilst overall, Class I jars accounted for 71% of all vessels above this size. Finally, the un-burnished coarseware bowls (Class III) measured from 11–40cm, with most falling within the small–medium size bracket (67%). By and large, these figures support the suggestion that most of the small vessels in the assemblage were bowls, and in particular, finewares. In total, 81% of small–medium vessels were bowls, and of these, 71% belonged to Class IV. Equally, 76% of large–very large vessels were jars, and of these, 92% belonged to Class I.

Bases

The EH/BM typology of bases included 17 different forms. For our purposes here these have been simplified into five categories; Table 3.5 lists the relationship between categories and forms in the archive. The assemblage included 541 base sherds (25,699g), deriving from 219 different vessels. Ninety-five percent of the bases could be assigned to type; common forms were the flat and stepped base. Sizes ranged from 4–40cm in diameter, though 36% were under 10cm (Fig. 3.24.C). As only 12 vessels retained both a measurable mouth and base, it is difficult to understand how these variables change in relation to one another. Judging by the examples, bases under 11cm in diameter belong to the small–medium vessels with diameters around 10–21cm or below. As shown above, these mainly consist of fineware bowls. Equally, the larger bases over 14m in diameter

Table 3.7. Quantification of decorated sherds; figures arranged by vessel count (bold), number of sherds, and weight (g).

Decoration/Zone	Rim-top	Rim inner edge	Rim outer edge	Rim-top & edge	Rim & neck	Rim & body	Neck	Neck & shoulder	Shoulder	Shoulder & rim	Body	Base	Unknown	Total
Grooved/ burnished lines	**3**:3/65		**2**:2/18				**4**:5/191		**7**:8/107		**13**:15/240	**2**:8/244	**15**:26/334	**46**:67/1199
Burnished lines & fingernail						**1**:1/5								**1**:1/5
Scoring							**1**:1/20				**4**:4/76		**4**:6/41	**9**:11/137
Scoring and pinching													**1**:1/4	**1**:1/4
Pinching	**6**:7/146	**1**:1/39			**1**:2/8		**2**:2/22		**3**:3/57		**2**:2/19	**3**:5/240	**5**:6/42	**23**:28/573
Fingertip impressions	**36**:37/604	**5**:5/68	**13**:18/311	**1**:1/6	**2**:2/22		**9**:9/121		**17**:18/361		**13**:20/361	**4**:4/122	**18**:22/188	**118**:136/2164
Fingertip & grooved/ lines					**1**:1/36	**1**:149/8792								**2**:150/8828
Combed			**1**:3/53						**7**:11/172	**1**:7/69	**8**:12/95		**11**:12/34	**28**:45/422
Ridging		**1**:1/40	**2**:2/28				**1**:1/42		**2**:2/19		**4**:8/134	**4**:4/32	**15**:36/446	**29**:54/741
Ridging and scoring													**1**:1/8	**1**:1/8
Shallow tooled linear line/s	**4**:4/21		**8**:9/94				**6**:8/113	**1**:1/12	**6**:16/171		**10**:12/100	**2**:3/30	**22**:26/281	**59**:79/822
Tooled linear lines & ridging			**1**:2/16											**1**:2/16
Raised bosses													**2**:2/47	**2**:2/47
Stabbing			**1**:1/8				**1**:1/42		**3**:3/388				**1**:1/6	**6**:6/444
Fingernail impressions	**3**:23/1509	**1**:1/11	**4**:4/82				**2**:2/22		**4**:4/50		**1**:1/12			**15**:35/1686
Fingertip & nail impressions	**2**:2/31				**1**:1/10									**3**:3/41
Fingernail & pinching	**1**:1/5													**1**:1/5
Cordon			**2**:2/29						**1**:1/11		**1**:1/7		**5**:8/177	**9**:12/224
Cordon & incised lines													**1**:1/7	**1**:1/7
Cordon & fingertipping													**1**:1/12	**1**:1/12
Cordon with fingertipping	**3**:4/122		**1**:1/40				**1**:1/100		**12**:13/266		**1**:2/75	**1**:1/130	**7**:7/130	**26**:29/863
Cordon with fingernail							**1**:1/16		**2**:2/44				**1**:1/8	**4**:4/68
Cabled cordon & fingertipping					**1**:1/107									**1**:1/107
Stamped									**1**:1/7				**3**:4/67	**4**:5/74
Shallow curvilinear lines							**1**:1/2						**1**:1/3	**2**:2/5
TOTAL	**58**:81/2503	**8**:8/158	**35**:44/679	**1**:1/6	**6**:7/183	**2**:150/8797	**29**:32/691	**1**:1/12	**65**:82/1653	**1**:7/69	**57**:77/1119	**16**:25/798	**114**:162/1834	**393**:677/18,502

Table 3.8. Quantification of pottery by sub-assemblage.

Sample	**No. sherds**	**Wt.** (g)	**MSW**	**% of the analysed assemblage** (by wt.)
Total pottery weighed from the Rings	-	278,317	-	-
14 sample slots though the Rings (*Inner ring sub-totals*) (*Outer ring sub-totals*)	4867 *4139* *728*	69,937 *60,265* *9672*	14.4 *14.6* *13.3*	49.9
Other recorded pottery from the Rings (not within the sample slots)	386	5805	15.0	4.1
Features within the Rings	5163	48,421	9.4	34.5
Features outside the Rings	683	16,096	23.6	11.5
TOTAL	11,099	140,259	12.6	100

belong to large–very large wide-mouthed vessels over 25cm in diameter; a category dominated by coarseware jars.

Burnishing

Burnishing was the key criteria for distinguishing between finewares and coarsewares (Table 3.6); the category 'burnished' includes vessels that are both burnished and polished, totalling 2441 sherds, weighing 22,037g (22.0% of the assemblage by count, 15.7% by weight). Clear patterns are evident in the form, size and fabrics of the burnished vessels. Though a wide range of fabrics were treated, few were persistently burnished. As with other PDR assemblages, burnishing tended to occur on fabrics with fine or intermediate sized inclusions; specifically pots tempered with fine and medium grade crushed flint (Fabrics 1–5), those with flint and either sand or grog (Fabrics 17–18), or those with sandy fabrics (Fabrics 20–25). This suggests that clays and tempering agents were carefully selected and prepared in regards to this form of surface treatment. In other words, it implies that pots were manufactured to belong to a specific class of vessel from the *outset* of production.

Patterns are also evident in the types of vessels burnished. Burnishing was found on a wide range of vessels, though not on Jar Forms D, E, F and Q, or Bowl Forms L and O. In total, 46% of the vessels assigned to form were burnished, a much higher frequency than that suggested by sherd count or weight. Burnishing was present on 31 of the 51 identified bowls/cups (62%), whilst only six of the 29 jars were embellished (21%). The analysis of the rim and base diameters has already shown that it was the smaller vessels which were most frequently treated, particularly those with rim diameters under 18cm, and base diameters below 11cm (Fig. 3.24).

When combined, the evidence suggests a close-knit relationship between burnishing, fabric, form, and vessel size. Burnishing was most prolific on small bowls and cups made with fine inclusions, whilst wiping and smoothing were more commonly found on the large, coarsely-gritted jars. This is a well established pattern, and probably reflects the functional distinction between large coarseware jars and bowls used for storage and cooking, and the smaller fineware bowls, cups and jars used as 'tableware' for serving, eating and drinking.

Decoration

By count, 6.1% of sherds in the assemblage were decorated (13.2% by weight). This included 677 sherds (18,502g), representing a maximum of 393 vessels (Table 3.7). The decoration was originally recorded using a highly complex system of classification which recognised over 50 different of forms of treatment and 19 potential zones of application (giving over 950 combinations of decoration). For the purposes of this report, many decorative techniques have been grouped together as have the vessel zones. (This also applies to decoration on the Middle Iron Age pottery which used the same system; details can be found in the Mucking paper archive). Nevertheless, even with such 'lumping' the assemblages still display a wide range of decorative schemes, all of which can be paralleled in other large Late Bronze Age/earliest Iron Age assemblages in Essex, notably those from Mucking North Ring (Bond 1980), Springfield Lyons (Brown 2013) and Lofts Farm (Brown 1988b).

At Mucking, the most common form of coarseware decoration was fingertipping, found principally on the rim-top, rim-edge and shoulder (Table 3.7). Of the 393 vessels with decoration, 43% had some form of fingertip treatment, whether on its own, or in combination with grooved lines, nail marks, or cordons. Other common forms of coarseware decoration included cordon application, mostly found at the shoulder, neck, or immediately below the rim. The finewares were decorated with grooved/burnished lines, ridging, shallow tooled linear lines and horizontal combing. Decoration on these vessels was mainly found on the body, shoulder, neck, or immediately below the rim.

The form and frequency of decoration is often used as a guide to assessing the chronological position of Late Bronze Age/earliest Iron Age assemblages; particularly for the distinction between 'Plainware' and 'Decorated' PDR pottery (Barrett 1980). Unfortunately, the frequency of decoration cannot be calculated in a straightforward manner, as ornamentation tends to be confined to restricted zones on the vessels (primarily rim, neck and shoulder). Gross counts, such as the proportion of decorated to undecorated sherds/feature sherds, tend to either over- or underestimate the incidence of decoration (Needham 1996b, 112). In this respect, it is difficult to gauge whether 6.1% sherd decoration at Mucking is a high, low or average frequency for a Late Bronze Age assemblage. The problem is compounded by the fact that such figures are rarely made explicit in reports.

One quantification method which appears to be more readily comparable is the frequency of rim decoration. Of the 656 different rims in the assemblage, 111 (17%) have some form of rim ornamentation. This figure is just 2% lower

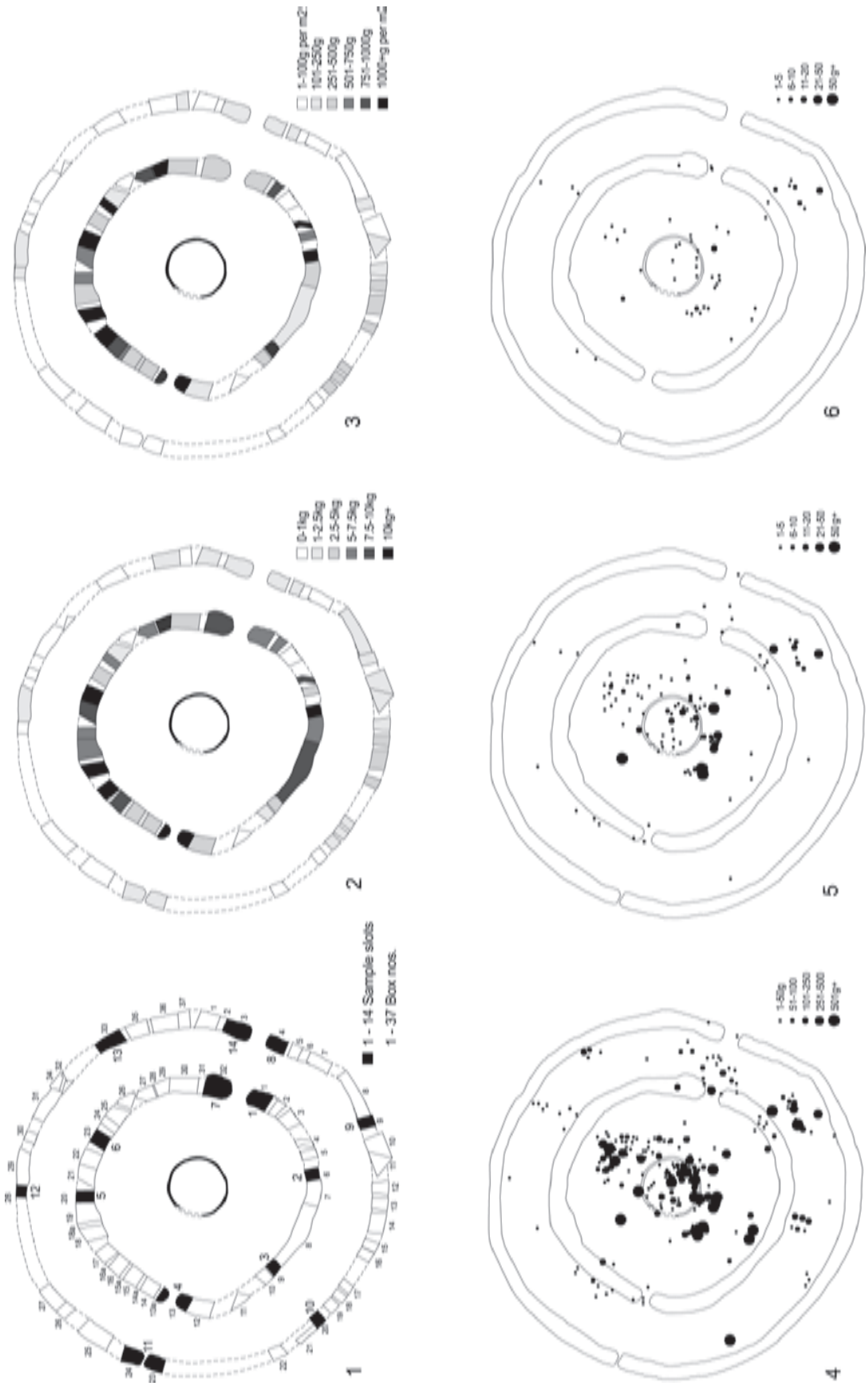


Figure 3.25. 1) Location of sample slots; 2) Gross distribution of pottery around the South Rings; 3) Adjusted distributions. Density of pottery per sqm of each slot excavated; 4) Distribution of pottery in interior features (by weight); 5) Distribution of burnished sherds in interior features (by weight); 6) Distribution of decorated fineware sherds in interior features (by weight).

than that calculated for the latest deposit in the Mucking North Ring (Barrett & Bond 1988, 28) and slightly greater than that calculated for the highest stratigraphic units at Runnymede Bridge Area 16 (L & M; Needham 1996b, 112, table 14), dated to the late ninth or early eighth century BC. Overall, this matches the broader patterns across Southern England, where levels of decoration fall around or above the 20% mark during the Late Bronze Age/Early Iron Age transition, whether calculated by the number of decorated sherds (e.g. Potterne: Gingell & Morris 2000, 154; Petter's Sports Field: O'Connell 1986, 63) or decorated vessels (e.g. Runnymede Bridge: Longley 1980, 70–1, fig. 46; Budbury: Wainwright 1970, 138).

The South Rings Assemblage

The most important assemblage of pottery derived from the ditches of the South Rings. Combined, these yielded over 278kg of pottery, a figure nearly double that recovered from the North Ring (Barrett & Bond 1988). The strategy for dealing with this large assemblage was devised during the EH/BM phase of post-excavation. The assemblage was sampled by quantifying pottery from 14 selected slots or 'boxes' from around the rings (seven from the inner ring and seven from the outer ring). Pottery from the remaining slots was also weighed, though these results were only recorded in the paper archive. The analysed assemblage comprised 4867 sherds, weighing 69,937g. By weight, this figure represents *c.* 25% of the total ditch assemblage and 49.9% of the total analysed assemblage (Table 3.8).

The sample slots were more or less evenly distributed around the circumference of the rings, and were aligned so that slots in the inner and outer ring were broadly opposite one another (Fig. 3.25.1). The lack of uniformity in the size and shape of slots meant that direct cross-circuit correspondence was not always possible. In addition, whilst it would have been favourable to analyse the material from the inner circuit's western entrance terminals separately, the methods of excavation and finds allocation meant that this was not possible.

Sub-assemblage Comparisons: Fabrics, Forms and Surface Treatment

Before exploring patterns in distribution, it is worth considering whether the pottery from the rings differed in composition to that from internal features and, more broadly, the assemblage as a whole.

There were a number of subtle differences in fabric frequencies. Whilst in every sub-assemblage over 80% of the pottery was flint-tempered, there were fluctuations in the relative frequencies of fine, coarse and mixed flint fabrics. The Rings' circuits contained the highest frequency of finer flint fabrics, and the lowest frequency of coarse fabrics (55% with fine–medium and 42% with coarse–very coarse flint). Importantly, fabric frequencies between the inner and outer rings were very similar, with only a 2–3% discrepancy between major fabric groups – figures only slightly different to that in the assemblage as a whole (40% and 53% respectively).

The main distinction, however, was with fabric groups from the interior features. By weight, only 26% of this pottery was made with finer flint fabrics (58% coarse–very coarse). The reduced frequency was because 13% of the pottery contained a mix of inclusions, notably flint and sand and, also, flint and quartz (Fabrics 18 & 19) – fabrics poorly represented in the Rings' overall assemblage (just 2–6% respectively). The inner features, therefore, contained a rather different balance of fabric groups. This is important as fabric diversification and an increased use of sandy wares is a trend that emerges during the transition from the Late Bronze Age to Early Iron Age. The relatively high frequency of flint and sand/quartz-tempered fabrics from the interior features could imply that the latest acts of deposition occurred within the inner ring's interior rather than in the ditches. However, these fabrics are prevalent in the Middle Iron Age assemblage, and it is possible that the frequencies have been skewed by intrusive or mis-assigned Middle Iron Age pottery; a distinct possibility considering that later settlement features occurred within the northwest area of the South Rings.

Despite the high incidence of finer fabrics in the rings, there was no significant difference in the frequency of burnishing. This is somewhat surprising, given the demonstrable relationship between grit-size and surface treatment. Burnishing was found on 1169 sherds from the rings (12,020g), representing 24.0% by count. This figure is near-identical to that for the overall assemblage, and is only slightly higher than that calculated for the internal features (1055 sherds, 75,557g, 20.4% by count). Once again, there were no marked distinctions between the pottery from the inner and outer rings, with 25% of sherds burnished from the inner (1018 sherds, 10,662g) and 21% from the outer (151 sherds, 1358g). Uniformity was equally evident in characteristics such as form representation and vessel size. Figures 3.26.A and B compare the frequency of vessel classes and vessel sizes from the overall assemblage against that recovered from the 14 sample slots and features internal to the rings. The graphs in these figures are remarkably uniform, the only slight difference being that the internal features contained a higher percentage of Class IV fineware bowls.

There is some degree of contrast in the incidence of decoration. At a broad level there appears only to be minor fluctuations in frequency, with 5.4% of sherds from the rings being decorated (262 sherds, 5121g), as opposed to 3.8% from the interior features (190 sherds, 2410g); neither figure is radically different from the 6.1% average from the total assemblage. In addition, Figure 3.26.C shows that decoration was distributed on the same zones of the vessels at broadly the same rate, whether they were from the sample slots, interior features or overall assemblage. Nevertheless, differences are more marked when only rim-decoration is considered. In the rings, 22% of rims were decorated (74 out of 336) in contrast to 9% from the interior features (25 out of 274). The vast majority of decorated rims were recovered from the inner ring, where 69 out of the 291 rims were embellished (24%). In the outer ring, only 11% were treated (5 out of 45); a figure comparable to that from the interior features. As stated above, the frequency of rim treatment is likely to give a better indication of the number of decorated vessels in an assemblage, as opposed to sherd count. It is deduced, therefore, that the frequency of *vessel* decoration was twice as high in the inner ring assemblage than in any other sub-assemblage from the South Rings.

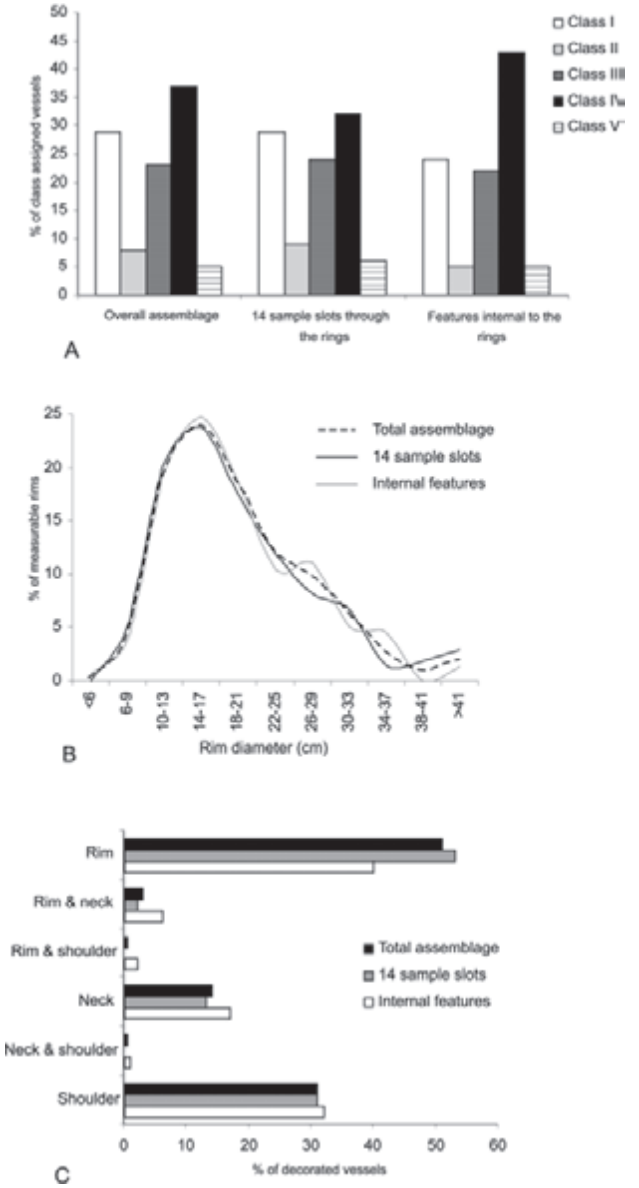


Figure 3.26. A) Comparison of vessel class frequencies. There were 34 form-assigned vessels from the sample slots, equalling 60 sherds, 2887g, EVE 4.00 (vessel breakdown: 10 Class I, three Class II, eight Class III, 11 Class IV vessels, two Class V). The interior features contained 27 form-assigned vessels, equalling 209 sherds, 2958g, EVE 4.10 (vessel breakdown: nine Class I, two Class II, eight Class III, 16 Class IV, two Class V). B) Comparison of rim diameters. Three hundred and thirty-six different rims were recovered from the sample slots (404 sherds, 7335g), 210 of which could be measured (260 sherds, 5959g, 15.31 EVE); 274 different rims were recovered from interior features (540 sherds, 5907g), 154 of which were measurable (397 sherds, 5098g, 13.12 EVE). C) Frequency of decoration on different vessel zones. Decoration on or around the base, or on ill-defined zones such as 'body' have been excluded. The number of decorated vessels includes 205 from the overall assemblage, 134 from the rings, and 52 from internal features.

These differences are possibly related to chronology and depositional sequence, and will be discussed in more detail when the stratigraphic evidence is examined (see below).

In conclusion, there are relatively few contrasts between the composition of the overall assemblage and that from the rings or internal features. Although there are differences in the proportion of decorated vessels and, to a lesser extent, fabric frequencies (both of which may be chronologically related), the basic composition of groups was remarkably uniform – even those of the inner and outer ring. It is unlikely, therefore, that a more detailed examination of the sub-assemblages will reveal any new patterns which have not already been elucidated at the level of overall assemblage. Consequently, one cannot argue that a substantially different 'service' of vessels was deposited in the Rings' ditches as opposed to the features therein, or the assemblage as a whole. Irrespective of the nature of consumption within the South Rings (both in terms of foodstuffs and ceramics), one may suggest that the vessels from these sub-assemblages probably had the same range of storage, cooking and serving functions. This is not to argue that these practices were both quantitatively and qualitatively different to those occurring elsewhere on the site, nor does it deny that there may be distinct differences in the nature and location of ceramic deposition. Rather, this discussion had aimed to demonstrate that at the level of sub-assemblage, the character and composition of these groups was consistent.

So far there has been no comparison between pottery recovered from the South Rings and that from external features. During the EH/BM phase of post-excavation, pottery analysis focused on the South Rings area (Etté 1993, 18), with only limited sampling of the extra-mural settlement (the extent of which can now be shown by plots of the MPX pot data; see Fig. 3.3). Only one area was investigated in detail, this being the cluster of three post-built roundhouses in the northeast corner of the site (RH107–109), together with a scatter of pits and postholes in their immediate vicinity (see Figs. 3.7 & 3.9). The analysed assemblage contained 683 sherds, weighing 16,096g. Though this may appear to be a moderate-sized assemblage, over half the pottery (by weight) belonged to a single large Form C storage jar (149 sherds, 8792g), which accounts for the high MSW in Table 3.8.

Overall, the assemblage from external features contained just six vessel forms (177 sherds, 1073g), including three Class I jars, two Class III bowls and a single Class IV bowl. Compared to the South Rings, the frequency of burnishing was lower, with only 15.5% of sherds treated (106 sherds, 1234g). In addition, there was a more even balance between the number of small- to medium-sized vessels (around 14–17cm in diameter) and large vessels (around 26–29cm in diameter). This contrasts with the South Rings, where small- to medium-sized vessels dominated. It should be noted, however, that only 14 of the 23 rims in the assemblage were measurable (183 sherds, 10,455g, EVE 1.55), and that the results may be skewed by the small sample size. This may also explain the high levels of decoration, with 12% of sherds embellished (64 sherds, 54% of rims).

Table 3.9. Quantification of pottery from the 14 sample slots (denotes slots through the terminals).*

Ring	Slot No.	No. sherds	MSW	No./wt. (g) burnished	% burnished	No. decorated sherds	% of sherds decorated	no. diff. rims/ no. decorated (vessel count)	% rims decorated
Inner	1*	305/6190	20.3	74/1092	24.3	15	4.9	28/4	14
Inner	2	906/14,035	15.5	114/909	12.6	36	4.0	61/12	20
Inner	3	453/5076	11.2	114/970	25.2	17	3.8	31/5	16
Inner	4*	1366/16,386	12.0	407/3935	29.8	95	7.0	82/29	35
Inner	5	439/6195	14.1	80/758	18.2	24	5.5	31/7	23
Inner	6	300/4050	13.5	143/1337	47.7	16	5.3	31/6	19
Inner	7*	370/8333	22.5	86/1661	23.2	25	6.8	27/6	22
Outer	8*	117/2213	18.9	11/308	9.4	12	10.3	7/-	0
Outer	9	154/1383	9.0	28/164	18.2	8	5.2	10/2	20
Outer	10	76/539	7.1	28/173	36.8	4	5.3	6/-	0
Outer	11*	98/1680	17.1	21/122	21.4	1	1.0	6/-	0
Outer	12	71/850	12.0	15/103	21.1	2	2.8	6/-	0
Outer	13	94/981	10.4	23/270	24.5	2	2.1	3/-	33
Outer	14*	118/2026	17.2	25/218	21.2	6	5.1	7/2	29
Inner Total	-	*4139/60,265*	*14.6*	*1018/10,662*	*24.6*	*228*	*5.5*	*291/69*	*24*
Outer Total	-	*728/9672*	*13.3*	*151/1358*	*20.7*	*35*	*4.8*	*45/5*	*11*
TOTAL	-	4867/69,937	14.4	1169/12,020	24.0	263	5.4	336/74	22

Some of the distinctions between the South Rings and external feature sub-assemblages may be partly due to differences in the *context* of ceramic deposition. The external settlement was characterised by an unenclosed swathe of small pits and postholes, as opposed to the South Rings which was encircled by large open ditches. In terms of size, the combined volume of deposit excavated from the external settlement is but a tiny fraction of that from the South Rings' ditches, which must have acted as a 'catch all' for artefacts in in the immediate vicinity. At a basic level we can also suggest that there are different practical solutions for dealing with refuse on open and enclosed sites which affect what, where and how often pottery is deposited, and ultimately, what we recover from the archaeological record. This is not to argue that we can understand the composition and distribution of artefact assemblages solely with 'practical logic', but that we must appreciate that the form of the settlement was a conditioning factor in the way that refuse was managed.

On the open external settlement at Mucking, refuse could have been piled away from the houses, or alternatively, houses could be shifted when the 'mess' of settlement became overwhelming. Very little of the refuse generated may have ended up in features. What has been recovered could, therefore, be a skewed picture of the ceramics used at this site, perhaps explaining some of the differences in sub-assemblages. In the South Rings, the ditches and banks acted to contain the refuse generated from practices within. The management of refuse was to some extent constrained by the bank-and-ditch architecture, and refuse would have to be carried out of the earthwork, buried, or thrown into the ditches to remove it from the interior. Given the investment in construction, shifting site location was an unlikely option, and the large open ditches probably provided the most convenient place for discard. Even so, within the ringwork interior, there is still a much greater sense that refuse was everywhere, given that almost all the internal features, including the small postholes, contained some pottery fragments.

It is also worth considering that the 'finality' of deposition in large ditches is rather different to that in pits and postholes. The deposition of even small quantities of pottery, soil and other refuse tends to fill small pits and postholes; in effect, removing the feature and its contents from the 'active' surface of occupation. In contrast, large dumps of refuse rarely fill a ditch in one single episode, particularly ones as large as the South Rings. As the ditches remain part-filled, but essentially open, the refuse accumulated could still be accessed, added to, re-moved or reworked. In other words, this material continued to be part of an *active* occupation matrix, even though it had been 'deposited'. Material in the ditches remained, therefore, in a state of 'provisional refuse', and was only removed from the refuse cycle once it was buried (assuming it does not re-enter this cycle though clearing out, *etc.*).

Distributions around the South Rings

Pottery was not evenly distributed around the circumference of the South Rings ditches. By weight, the inner ditch contained over five times more pottery than the outer. A total of 237,281g of pottery was recovered from the inner ring (85.2%), compared to just 41,036g from the outer (14.7%; no sherd counts are available). The gross distribution of material is shown in Figure 3.25.2. The plots clearly demonstrate the concentration of deposition around the entrances of the inner circuit and the areas toward the

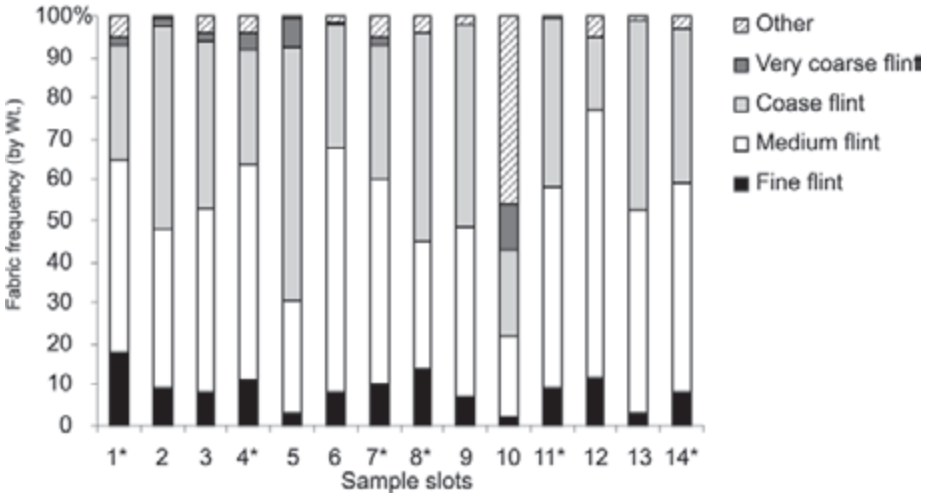


Figure 3.27. Relative frequency of different fabrics groups in the 14-slot sample (denotes slots through the terminals. Inner ditch: Slots 1–7. Outer ditch: Slots 8–14).*

middle of the two inner 'ditch-arcs'. By contrast, there were few 'highs' or areas of concentration in the outer ring, with no single slot yielding over 7500g of pottery. The only relative peak was towards the centre of the southern ditch-arc, corresponding to the high in the inner ring. Whilst it could be suggested that deposition was focussed on the eastern half of the outer ring, the distribution is skewed by the poor preservation and/or incomplete excavation of the western side of the circuit. The complete absence of small features across much of this zone reflects that the western half of the South Rings suffered extensive machine truncation and/or inadequate surface clearance (Fig. 3.11). Given the localised thinning of the ditch in some areas, truncation is more likely, and since the majority of the pottery was recovered from the capping fills (see below), severe truncation would have had the greatest impact on artefact recovery.

Other biases evident in Figure 3.25.2 also need to be addressed, including the differential size of the excavated slots. Some of the slots were extremely large, such as the two through the eastern terminals of the inner ring, and the slot in the centre of the southern inner ditch-arc. These large slots exaggerate the quantities of pottery recovered. To make figures more comparable, the weight of pottery from each slot was divided by the surface area excavated, giving a more reliable index of density. The adjustments are presented in Figure 3.25.3, and show that the main focus of ceramic deposition was along the central area of the inner ring's northern ditch-arc and the western terminals. There were also localised 'highs' in the inner ring's southern ditch-arc.

Hints at other distribution patterns can be gleaned by comparing different variables from the 14 sample slot assemblages (Table 3.9). The figures confirm the distribution in Figure 3.25.2, which indicate that large quantities of pottery were deposited in the inner ditch, notably at the western entrance (Slot 4). The eastern entrance terminals had the highest MSWs (Slots 1, 7, 8 & 14), suggesting that these areas contained relatively large unabraded sherds, presumably deposited soon after breakage. There was less patterning, however, in the distribution of finewares and decorated sherds. Whereas the inner ring contained a much higher frequency of decorated *vessels*, the overall percentage of sherd decoration was remarkably similar between circuits. Likewise, whilst the terminals contained a slightly higher frequency of decorated and burnished sherds, the differences can hardly be deemed significant. Neither can the fluctuations in fabric frequency, which display little clear-cut patterning (Fig. 3.27). The only true anomaly was in Slot 10, where there was an inflated percentage of sherds with mixed inclusions (Fabrics 16–18).

With the exception of MSW, there was little sense of overall patterning in the distribution of different variables from the 14-slot sample. Though there are marked differences in the overall character of the individual slot assemblages, there is little evidence to suggest that particular traits are linked to specific areas of the rings. For example, fineware burnished sherds were not restricted to a particular zone, but are found through the rings, albeit in varying quantities. The same is true of decorated sherds/vessels (although there are clear distinctions in their frequency between the inner and outer ring sub-assemblages). The lack of a 'fine-grained' spatial patterning is possibly a product of the sample size, which may be too small to register localised variations. However, it is more likely that ceramic refuse was never categorised or deposited in this manner. That there is so little spatial patterning implies that most *types* of pottery were not marked for deposition in particular places. The only real distinction is that different *quantities* of pottery were deposited in different areas, notably the eight points of 'concentration' around the inner ring, and more specifically, the four high density zones in the north ditch-arc of the inner circuit (Figs. 3.20 & 3.25.2).

Distributions within the South Rings

Pottery from 248 interior features was recorded during the EH/BM phase of post-excavation (5163 sherds, 48,421g). In this analysis, 19 of the features could not be located on the plan and, therefore, are excluded from the following discussions (168 sherds, 1850g).

Table 3.10. Relationship between spit-groups, fills and contexts in the South Rings.

Spit Group		Fill	Context		Inner Ring	Outer Ring
Group 3 (Spits 7–10)	-	Lower	Primary		[302]	[309]
-	Group 2 (Spits 4–6)	Middle	Secondary		[301]	[308]
Group 1 (Spits 1–3)		Upper	'Late Fill'	Charcoal	[3520]	[3401]
	-			Late Secondary	[3519]	[3400]
				Tertiary	[300]	[307]

Most pottery was recovered from pits and postholes within the inner ring (Fig. 3.25.4). The distribution of these features is largely a product of preservation; most surviving in a *c.* 15m-wide northeast–southwest 'corridor' which skirts the inner eastern edge of the RBI enclosure. The features containing the largest assemblages of pottery were distributed in and around the southern half of Roundhouse 5, and to a lesser extent, the area to the northeast of that structure. The ring-gully/wall-trench of Roundhouse 5 yielded the largest quantity of pottery, totalling 687 sherds (3987g). Within the outer ring, there was a low density but widespread scatter of features yielding pottery. Most were located in the eastern half of the ring where preservation was generally better. Some of the features in the western half of the enclosure are probably Middle Iron Age in date, particular those around the terminals of the inner ring's western entrance, where several Middle Iron Age roundhouses are located (Fig. 3.11). Overall, very few features in the outer ring contained over 250g of pottery. Most of the features yielding high quantities were located in a limited area in the southeast quadrant of the ring.

The gross distribution of pottery broadly parallels that from the ditch circuits, with deposition centring on the inner ring. Another pattern connecting the distributions is the lack of evidence that specific types of sherds/vessels were repeatedly deposited in specific parts of the interior. Undeniably, most burnished fineware sherds were found in features within the inner ring, and in large quantities in the pits and postholes south of Roundhouse 5 (Fig. 3.25.5). However, as these features contain the most pottery *overall*, it is hardly surprising that they yielded the most burnished sherds (in most cases their number increased proportionally to the size of the assemblage). The same argument can be used to explain the distribution of decorated fineware sherds (Fig. 3.25.6). Once again, these were mainly confined to features with the largest assemblages.

Despite issues of preservation, the broader patterns of pottery distribution in the interior features complement those in the ditch circuits. Taken together, *the evidence indicates that the inner ring and its internal features were the main focus for acts of pottery deposition*. These often involved vast quantities of ceramic refuse, creating the dense concentrations observable in the distribution plots. As with the pottery in the ditches, there is little evidence that different types of sherds/vessels were selected for deposition in particular places, as has been argued for other ringwork sites (Parker Pearson 1996). This is not to deny that there is patterning in the spatial distribution of material, but to stress that this patterning relates specifically to the *quantity* of pottery deposited. More often than not, individual feature-based assemblages contained a generalised matrix of ceramic refuse, with varying proportions of finewares and coarseware, decorated and undecorated sherds, and sherds from different fabric groups. Even in the largest assemblages there is often little in the character or composition of the material to distinguish them from other small groups. What sets these apart is the size of assemblages, and the fact that such deposits were repeatedly made in particular locations in the interior.

Ceramic Change and the Stratigraphic Sequence

The 14 sample slots were all excavated in six-inch spits, labelled 1 from the surface, down to 9 or 10 at the base, depending on the depth of the ditch. The pottery from each slot was bagged by coordinate and spit number, allowing specialists to crudely reconstruct the vertical stratification of material. During the EH/BM phase of post-excavation, an attempt was made to overhaul the spit-system and re-contextualise the pottery by linking it back to the sequence of ditch fills recorded on the sections and notebooks. Examination of the sections revealed a basic sequence of fills, each of which was assigned a context number. The position of the spits, however, had to be reconstructed in relation to these fills. This was achieved by drawing out the position of each spit over the top of the available sections, thus defining which context or range of context was excavated in each six-inch spit.

The notes in the paper archive testify to the problems which were encountered in this process. Firstly, the sections were of variable quality and were not equally distributed around the circuit of the rings. This meant that sections not directly linked to the sample slots had to be used to correlate spits and contexts. Problems with this approach were recognised, and in most cases, various sections were used in collaboration, so as to check consistency and even out differences. The second problem was more difficult to overcome, as most spits cross-cut several fills in the ditch simultaneously. In other words, there was no

Table 3.11. Quantification of pottery by sample slots and spit-groups (denotes slots through the terminals).*

Slot	**Upper fill: Group 1** (Spits 1–3)			**Middle fill: Group 2** (Spits 4–6)			**Lower fill: Group 3** (Spits 7–10)		
	No./wt (g) **of sherds**	**% of slot assemblage** (by wt.)	**MSW**	**No./wt** (g) **of sherds**	**% of slot assemblage** (by wt.)	**MSW**	**No./wt** (g) **of sherds**	**% of slot assemblage** (by wt.)	**MSW**
1*	178/2714	43.8	15.2	77/1532	24.7	19.9	50/1944	31.4	38.9
2	888/13,867	98.8	15.6	18/168	1.2	9.3	-	-	-
3	431/4953	97.6	11.5	22/123	2.4	5.6	-	-	-
4*	1293/15,310	93.4	11.8	67/1035	6.3	15.4	6/41	0.3	6.8
5	233/2405	38.8	10.3	206/3790	61.2	18.4	-	-	-
6	142/1904	47.0	13.4	121/1760	43.5	14.5	37/386	9.5	10.4
7*	251/6437	77.2	25.6	44/772	9.3	17.5	75/1124	13.5	14.9
8*	51/596	26.9	11.7	31/494	22.3	15.9	35/1123	50.7	32.1
9	126/1218	88.1	9.7	19/128	9.3	6.7	9/37	2.7	4.1
10	34/225	41.7	6.6	39/289	53.6	7.4	3/25	4.6	8.3
11*	98/1680	100	17.1	-	-	-	-	-	-
12	71/850	100	12.0	-	-	-	-	-	-
13	92/958	97.7	10.4	2/23	2.3	11.5	-	-	-
14*	56/954	47.1	17.0	31/618	30.5	19.9	31/454	22.4	14.6
Inner Total	*3416/47,590*	*79.0*	*13.9*	*555/9180*	*15.2*	*16.5*	*168/3495*	*5.8*	*20.8*
Outer total	*528/6481*	*67.0*	*12.3*	*122/1552*	*16.0*	*12.7*	*78/1639*	*16.9*	*21.0*
TOTAL	3944/54,071	77.3	13.7	677/10,732	15.3	15.9	246/5134	7.3	20.9

straightforward correlation between spits and context, meaning that a range of alternative contexts were given to each individual spit.

The new system was complex and is cumbersome to work with. Each spit previously denoted by a single number from 1–10, was now replaced by between one and five different context numbers. For example, Spit 1 in Slot 7 cross-cut parts of all major fills, so was given the context numbers [300/3519/3520/301/302]. In reality, most of the fill dug in this slot belonged to the 'late fill' of the ditch (encompassing Contexts [300/3519/2520]). However, because there was the possibility that some material was from the primary or secondary fills, it was necessary to add the other two context numbers. Ultimately this scheme could not adequately quantify the *probability* that pottery from a given spit derived from one particular fill/context. The 'compromise' of providing alternative context numbers has made it extremely difficult to compare the data, or quantify how much pottery there was in each context. For these reasons the following discussions are based around the original spit system, though broad correlations between spit and fill are suggested.

The spits have been divided into three groups: Group 1, Spits 1–3; Group 2, Spits 4–6; and Group 3, Spits 7–10. These broadly correspond to upper, middle and lower fills of the ditch (Table 3.10). A re-examination of the sections suggests that the bulk of fills dug in the Group 1 spits belonged to the capping of the ditches, commonly referred to as 'late fill'. This encompassed the charcoal layer [3220]/[3401], the late secondary fills [3519]/[3400], and the tertiary fill [300]/[307]. It is, therefore, assumed that *most* pottery from the Group 1 spits derived from this final episode of infilling; a supposition supported by the notebook entries. In order to clarify this relationship seven sections from the inner ring were examined in more detail (from Sample Slots 1, 2 & 7 and 'Box' 3; see Fig. 3.25.1). The area occupied by each context/fill in each spit was calculated, and expressed as a percentage. This provided a means of estimating the probability that pottery from an individual spit came from a particular fill. For example, the 'late fill' occupied between 79–100% of the area in Spits 1 in each section, with a mean average of 93%. There is therefore a very high probability that the pottery from Spit 1 derived from the 'late fill'. As expected, the probability fell with each spit, as the fills were concave in profile (over Spits 1–3, the average fell from 93%, to 85% to 75%). However, the overall average for the Group 1 spits was 84% and we can, therefore, be confident that the vast majority of pottery from the Group 1 spits derived from the 'late fill'.

As the 'late fill' did not penetrate into any of the Group 3 spits, we can be confident that all this pottery belongs to the primary or secondary fills. Using the methods above, an average of 90% of the area in Spit 8 belonged to the primary fill, with 100% in Spits 9 and 10 (only 34% in Spit 7). The overall average was 70%, meaning there is a strong probability that pottery from the Group 3 spits derives from the primary fill. The patterning for the Group 2 spits is more complex. The base of the 'late fill' is caught within upper spits of the group (Spits 4–5); whilst the secondary fills dominate the lower spits (Spits 5–6). Contexting is problematic, and the probability results are too varied to be considered reliable. In this sense the division is arbitrary, and Group 2 spits are best defined as a convenient 'middle group'.

A vast quantity of pottery was recovered from the upper fills of the South Rings ditches. The assemblage from the Group 1 spits comprised 3944 sherds weighing 54,071g (EVE 26.31). Most pottery derived from the inner circuit, which contained over seven times the quantity found in the outer ditch. Overall, 77% of the pottery from the sample slots was recovered from the Group 1 spits, broadly equivalent to the 'late fill' contexts. These spits yielded over three-quarters of the pottery from nine of 14 individual sample slot assemblages, and in Slots 11 and 12, all the pottery was found in this horizon (Table 3.11).

For the rest of this report the term upper fills will refer to the Group 1 spits; middle fills to Group 2 spits, and the lower fills to Group 3 spits.

Changes in Distribution

The pottery was more or less evenly distributed around the circumference of the outer ring. This was not, however, the case for the inner ring, where deposition concentrated around the western entrance and the central area of the southern ditch-arc. In the latter zone, Slots 2 and 3 yielded 40% of all the pottery from inner ring upper fills (30% and 10% respectively). This compares to just 9% in Slots 5 and 6 on the opposite side, in the northern ditch-arc (5% and 4% respectively). The western entrance yielded 32% of the pottery (Slot 4), whilst that from Slots 1 and 7 through the eastern terminals totalled 20% (6% and 14% respectively). In general, the slots through the eastern entrances yielded lower frequencies of pottery in their upper fills, as did the slots through the centre of the northern inner ditch-arc (Table 3.11). The exception was terminal Slot 7. However, here the pottery from the upper fills had a MSW that was considerably higher than elsewhere, suggesting that a different *kind* of deposition occurred, involving a smaller number of larger, 'freshly' broken sherds.

The middle fills yielded 677 sherds, weighing 10,732g (EVE 9.30). The distribution of pottery was the mirror image of that in the upper fills. In the inner ring, deposition was clearly focused on the centre of the northern ditch-arc, where 60% of the pottery derived from Slots 6 and 7 (41% and 19% respectively). On the opposite side of the circuit, in the southern ditch-arc, Slots 2 and 3 contained just 3% of the inner ring's middle fill's assemblage (2% and 1% respectively). The eastern entrance was also a focus for deposition, in both the inner and outer circuit. In the inner ring, 25% of the middle fill's pottery was recovered from Slots 1 and 8 (17% and 8% respectively). The patterns in the outer ring were even more extreme. 99% of the pottery was found in the southeast half of the ring, with 71% deriving from Slots 8 and 14 at the eastern entrances (31% and 41% respectively). Neither assemblage was especially large, but the MSWs were much higher than in other outer ring slots. The same was true from Slot 1 and 8 in the inner ring, suggesting that there was a preference for depositing large 'freshly' broken sherds around the eastern entrance.

The smallest assemblage of pottery was recovered from the lower fills of the South Rings ditches. In total, the lower fills contained 246 sherds, weighing 5134g (EVE 4.40). The pottery was recovered from just eight of the 14 sample slots, though 90% came from the four slots through the eastern entrance. The rest of the slots yielded just 489g of pottery between them. In the inner ditch assemblage, 88% of the pottery came from the eastern entrance (56% from Slot 1, 32% from Slot 7), whilst in the outer ring the figure reached 96% (68% in Slot 8, 28% from Slot 14). As with middle fills of the ditch, MSWs were notably higher in the eastern terminals than elsewhere, particularly in Slots

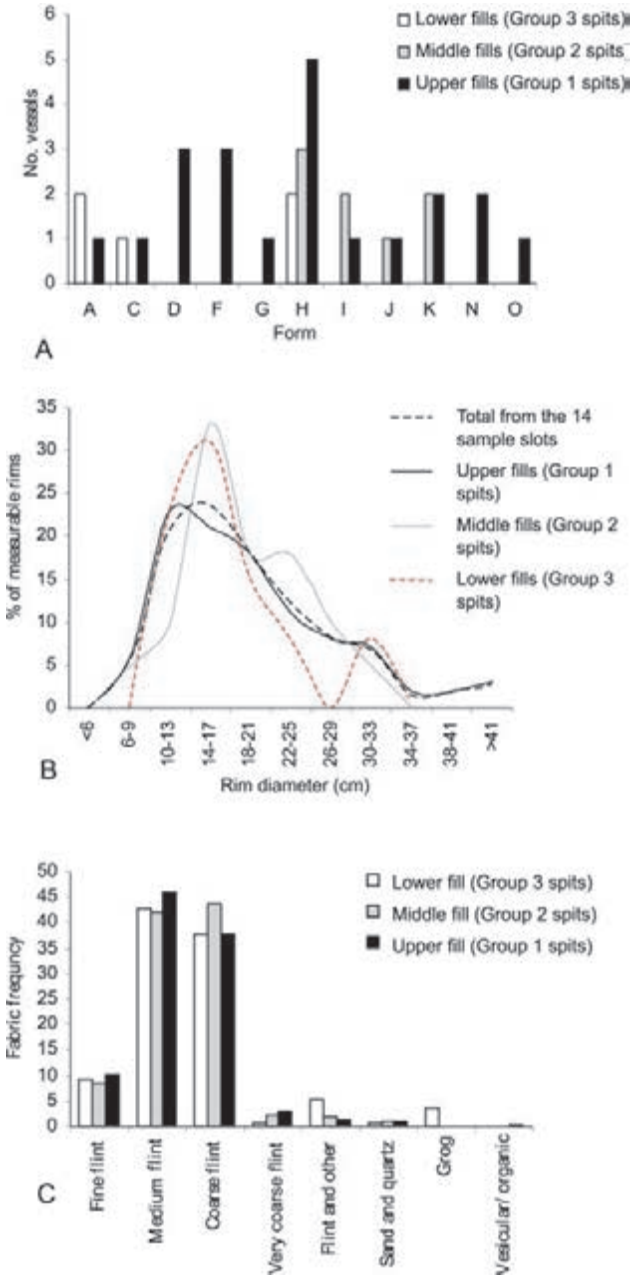


Figure 3.28. A) Comparison of form representation across the stratigraphic sequence. B) Comparison of rim diameters across the stratigraphic sequence. Seventeen different rims were recovered from the lower fills (26 sherds, 1408g), 13 of which could be measured (21 sherds, 1312g, rim EVE 1.30); 53 different rims were recovered from the middle fill (64 sherds, 772g), 39 of which were measurable (49 sherds, 650g, rim EVE 3.15); 266 different rims were recovered from the upper fills (314 sherds, 5155g), 158 of which could be measured (190 sherds, 3997g, rim EVE 10.86). C) Comparison of fabric frequencies across the stratigraphic sequence.

1 and 8 where average sherd weights exceeded 30g. The fact that this *type* of deposit (consisting of a small number of large sherds with high average weights) was specific to the terminals of the eastern entrances, both in the lower, middle, and to some extent the upper fills, suggests that the acts responsible for their inclusion were consistent throughout the sequence.

Changes in Composition

The stratigraphic sequence of ditch fills provides a means of analysing ceramic change at the South Rings. Changes to form, fabric, vessel size, surface treatment and decoration are examined across the lower, middle and upper fills of the rings (using the pottery from the three spit groups defined above). For this exercise, pottery from both the inner and outer ditch has been grouped together, mainly because the assemblages from the lower fills are too small to be considered independently. This is a justified approach given, a) the proven similarities in the overall character and composition of the inner and outer ditch assemblages (see above); b) there is no evidence to suggest the stratigraphic sequences are markedly different; c) there is nothing to suggest the pottery is of a different date.

Differences in form representation between the ditch fills indicates a broadening of repertoire across the stratigraphic sequence, with more complex vessel forms included at first, the addition of bipartite and tripartite angular fineware bowls, and finally, angular tripartite jars. The changes appear to be real, though the data are skewed by the small size of the assemblages from the lower and middle fills.

In total, the lower fills contained only five identifiable vessel forms (12 sherds, 1208g, rim EVE of 0.85). The repertoire was restricted to round shouldered jars and bowls, and included three Class I jars, a Class III bowl and a Class IV bowl. The middle fills also yielded a limited number of vessels, with only eight identifiable forms (15 sherds, 243g, rim EVE of 1.15). The repertoire was, however, slightly broader than in the lower fills, incorporating vessels with both rounded and angular shoulders, including bipartite and tripartite finewares. All the identified forms were bowls and cups (two Class III bowls, five Class IV bowls and a single Class V cup). Unsurprisingly, the widest repertoire was found in the upper fills of the ditch, where 21 forms were identified (33 sherds, 1436g, rim EVE of 2.00). With the exception of Forms E, L, M and Q, vessels of every type were represented, including the angular tripartite jars and fineware jars, which were not represented in the lower horizons (seven Class I jars, three Class II jars, five Class III bowls, five Class IV bowls and one Class V cup).

There were also changes to the size of vessels deposited in the rings. The changes were subtle, but can be mapped by plotting the frequency of rim diameters. The graph in Figure 3.28.B shows a gradual change in proportion of different size vessels. In the lower fills, there are two clear peaks, giving a bimodal distribution to the graph. The evidence from elsewhere in this report suggests that this assemblage was dominated by bowls and small jars around 14–17cm in diameter (mainly Class IV), with a small but significant number of large jars, represented by the peak at 30–33cm (mainly Class I). In the middle fills of the ditch, there were a much higher percentage of medium-sized vessels, as represented by the second peak around 22–25cm. The frequency of small vessels remained broadly similar, showing that it was the proportion of larger vessels that declined.

The shape of the graph for the upper fill was very similar to that from the 14-slot sample as a whole. The peaks in this horizon are far less distinct, indicating that a broader and diverse range of different size vessels were being deposited. Small vessels around 14–17cm continued to dominate, but the peak was less accentuated, and the graph displayed a much longer 'tail', with only slight secondary rises at 30–33cm and 41cm+. Overall, the shape of the graph shifted from one with bimodal distribution and well defined peaks, to one with a smoother profile and long tail. The breakdown of the bimodal distribution suggests that a wider range of medium-sized vessels was deposited, as well as a small number of very large storage jars. Taken together, the evidence shows that that the assemblages became increasingly diverse, with more varied forms and sizes of vessel being added to the repertoire as time progressed.

Despite the changes to forms and vessel sizes, there was no significant alteration to fabric frequencies. Figure 3.28.C shows the consistency across the stratigraphic sequence. This pattern is unusual as other contemporary sites in Essex show a trend away from coarse flint-tempered ceramics to ones with a higher frequency of sand and flint during the Late Bronze Age/earliest Iron Age transition (Brown 1988b, 269; 2013; Needham 2007, 28). This was clearly not the case at Mucking, and suggests that certain aspects of pottery production, such as fabric selection and clay preparation, were sometimes deeply rooted in localised pottery traditions, and were less 'open' to negotiation and change than other aspects, such as vessel form, size and decoration.

There were more marked differences in the incidence of burnishing, which increased between the lower and middle fills. Within the lower fills, 17.5% of the sherds were burnished (43 sherds, 890g), as opposed to 27.1% in the middle fill (184 sherds, 1861g) and 23.9% in the upper horizon (942 sherds, 9269g). The rise in burnishing implies that a greater number of Class II jars and Class IV/V bowls and cups were deposited in the later ditch silts, which itself may reflect fundamental changes to the ways people were choosing to eat and drink. Such vessels are normally associated with the serving and presentation of foodstuffs, and are functionally distinguished by their ability to hold liquids. The increased frequency of burnishing may, therefore, reflect a growing emphasis on the consumption of beverages, and in particular, consumption via small personalised bowls and cups, which could be held and used by individuals.

The most dramatic changes were seen in type, position and frequency of decoration. The lower fills of the ditch contained only 14 decorated sherds (304g), representing a maximum of eight decorated vessels (Table 3.12). The decoration was restricted to coarsewares, and can be characterised as 'unpatterned' or 'unfocused', as no one zone was repeatedly embellished. Although decoration was found on the rim, neck, shoulder, body and base of individual vessels, no single location or technique of decoration was favoured. In addition, the decorative repertoire was extremely limited, with simple techniques such as scoring, pinching, fingertipping, ridging or light burnishing/fluting being used. Different techniques were

Table 3.12. Quantification of decorated sherds by spit-group; figures are arranged by vessel count (bold), number of sherds, and weight (g).

Fill	Dec/ zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TOTAL
Lower fill (Group 3 spits)	Rim-top	**1**:1/54																			**1**:1/54
	Rim out. edge								**1**:1/12												**1**:1/12
	Neck				**1**:1/8																**1**:1/8
	Shoulder	**1**:1/19																			**1**:1/19
	Body	**1**:1/2	**1**:1/8																		**2**:2/10
	Base	**1**:7/194																			**1**:7/194
	Unknown					**1**:1/7															**1**:1/7
	TOTAL	**4**:10/269	**1**:1/8		**1**:1/8	**1**:1/7			**1**:1/12												**8**:14/304
Middle fill (Group 2 spits)	Rim-top					**7**:8/132															**7**:8/132
	Rim in. edge				**1**:1/39																**1**:1/39
	Rim out. edge					**2**:2/20		**1**:3/53	**1**:1/16		**2**:3/39										**6**:9/128
	Neck	**3**:4/43											**1**:1/42								**4**:5/85
	Shoulder					**3**:4/122		**2**:2/53			**1**:1/17										**6**:7/192
	Body				**1**:1/28	**1**:1/16															**2**:2/44
	Unknown					**1**:1/10					**2**:2/56	**1**:1/25									**4**:4/91
	TOTAL	**3**:4/43			**2**:2/67	**14**:16/300		**3**:5/106	**1**:1/16		**5**:6/112	**1**:1/25	**1**:1/42								**30**:36/711

Upper fill (Group 3 spits)	Rim-top	**2**:2/11			**5**:6/92	**23**:23/427					**1**:1/9					**1**:1/4					**32**:33/543
	Rim in.edge					**3**:3/28			**1**:1/40												**4**:4/68
	Rim out. edge	**2**:2/18				**6**:9/131					**6**:7/64			**2**:2/20	**2**:2/29	**1**:1/40					**19**:23/302
	Rim + neck				**1**:2/8		**1**:1/36											**1**:1/107			**3**:4/151
	Neck	**1**:1/148	**1**:1/20		**1**:1/14	**5**:5/94			**1**:1/42		**1**:3/4					**1**:1/100	**1**:1/16			**1**:1/2	**13**:15/440
	Shoulder	**4**:5/34			**3**:3/57	**7**:7/131		**4**:7/106	**2**:2/19		**1**:1/34		**2**:2/368	**2**:2/39		**8**:8/189	**1**:1/6		**1**:1/7		**35**:39/990
	Body	**2**:2/19	**1**:1/34		**2**:2/19	**4**:5/181		**1**:1/8	**1**:1/51		**9**:11/98										**20**:23/410
	Base				**3**:5/240	**2**:2/98			**4**:4/32		**1**:1/5										**10**: 12/375
	Unknown	**1**:7/161	**3**:4/18	**1**:1/4	**2**:3/30	**5**:6/79		**2**:2/7	**9**:13/122	**1**:1/8	**7**:8/118	**1**:1/22	**1**:1/6		**2**:5/114	**2**:2/63	**1**:1/8		**3**:4/67		**41**:59/827
	TOTAL	**12**:19/391	**5**:6/72	**1**:1/4	**17**:22/460	**55**:60:1169	**1**:1/36	**7**:10/121	**18**:22/306	**1**:1/8	**26**:32/332	**1**:1/22	**3**:3/374	**4**:4/59	**2**:7/143	**13**:13/396	**3**:3/30	**1**:1/107	**4**:4/74	**1**:1/2	**177**:212/4106

Key:
1. Grooved/burnished lines
2. Scoring
3. Scoring and pinching
4. Pinching
5. Fingertip impressions
6. Fingertip & grooved/lines
7. Combed
8. Ridging
9. Ridging and scoring
10. Shallow tooled linear lines
11. Raised bosses
12. Stabbing
13. Fingernail impressions
14. Cordon
15. Cordon with fingertipping
16. Cordon with fingernail
17. Cabled cordon & finger tipping
18. Stamped
19. Shallow curvilinear lines

Table 3.13. Changing frequency of decoration on different vessel zones.

Fill/ zone	Rim top	Rim inner edge	Rim outer edge	Rim & neck	Neck	Shoulder	Body	Base
Lower	14.3%	-	14.3%	-	14.3%	14.3%	28.6%	14.3%
Middle	26.9%	3.8%	23.1%	-	15.4%	23.1%	7.7%	-
Upper	23.5%	2.9%	14.0%	2.2%	9.6%	25.7%	14.7%	7.4%

never used on the same pot, and decoration was always restricted to one zone per vessel.

The middle fills of the ditch contained 36 decorated sherds (711g) from a maximum of 30 vessels. The frequency of decoration was similar to that in the lower fills, though the range of techniques was broader, with new forms including stabbing, horizontal combing and incising. More importantly, decoration was now used on finewares for the first time. The motifs were simple, but included combing, incising and the use of grooved/burnished lines on the outer rim edge, neck and shoulder. The zoning of decoration was also more focused, with a clear emphasis on the rim and shoulder. Fingertipping was the most common form of embellishment, with 46% of decorated vessels bearing this treatment.

The widest range of decorative techniques was found on pottery from the upper fills of the ditch, where 212 sherds (4106g) were treated from a maximum of 177 vessels. Nineteen different forms of decoration were identified, doubling the figure from the middle fills. Cordons were added to the coarsewares for the first time, including plain cordons, and varieties with cabling and fingertip and nail impressions. Their 'late' addition is somewhat surprising, since they are often seen as a link between Deverel Rimbury and PDR decorative schemes. Other new forms of decoration included stamping and the use of fingernail impressions (some of which are more akin to tooling or slashing). The finewares continued to display combed and incised motifs, though some displayed simple geometric patterns including incised triangles, or bands of diagonal lines. A single fineware vessel also displayed a shallow tooled curvilinear motif; though this could be residual. There were also changes to the zoning of decoration, with multiple zones being treated on the same vessel. In addition, there was a slight increase of emphasis on shoulder embellishment, whilst that on the neck declined (Table 3.13). Fingertipping, either on its own, on cordons, or in combination with other techniques, remained the dominant form of decorative treatment, with 40% of vessels displaying this technique (70 out of 177).

When calculated by sherd count, the overall frequency of decoration changed very little across the fill sequence (5.7% decorated for the lower fills, 5.3% for the middle fill and 5.4% for the upper fills). However, this method of calculation has proved to be unreliable, and frequency is better judged by the incidence of rim decoration. In the lower fill only 12% of rims were decorated (two out of 17), whilst in the middle and upper fills the figures reached 26% and 22% respectively (14 out of 53 rims decorated in the middle fills, 58 out of 2666 in the upper fill). The slight fall in the upper fill frequency probably results from the greater emphasis on zones other than the rim.

Catalogue of Illustrated Sherds

Figure 3.29

1) South Rings, Outer Circuit, Slot 8, lower fill (Spit 8). Base with grooved/burnished lines. Base Form J, Fabric 9.
2) South Rings, Outer Circuit, Slot 8, lower fill (Spit 9). Bowl, Form H, Class III, Fabric 9.
3) South Rings, Inner Circuit, Slot 1, lower fill (Spit 9). Jar, Form A, Class I, Fabric 5.
4) South Rings, Outer Circuit, Slot 14, lower fill (Spit 8). Base Form J, Fabric 6.
5) South Rings, Inner Circuit, Slot 1, middle fill (Spit 4). Burnished bowl decorated with grooved/burnished lines along the neck. Form H, Class IV, Fabric 5.
6) South Rings, Inner Circuit, Slot 1, middle fill (Spit 4). Bowl, Form I, Class III, Fabric 10.
7) South Rings, Inner Circuit, Slot 1, middle fill (Spit 5). Burnished bowl, Form J, Class IV, Fabric 3.
8) South Rings, Outer Circuit, Slot 14, middle fill (Spit 4). Burnished bowl, Form K, Class IV, Fabric 3.
9) South Rings, Inner Circuit, Slot 7, middle fill (Spit 5). Burnished base. Base Form C, Fabric 2.
10) South Rings, Inner Circuit, Slot 5, middle fill (Spit 4). Polished bowl with horizontal combining. Form I, Class IV, Fabric 6.
11) South Rings, Inner Circuit, Slot 4, middle fill (Spit 4). Polished cup, Form K, Class V, Fabric 4.
12) South Rings, Inner Circuit, unsampled slot, upper fill (Spit 3). Jar decorated with shallow tooled linear lines on neck. Form E, Class I, Fabric 5.
13) South Rings, Inner Circuit, Slot 7, upper fill (Spit 1). Bowl, Form H, Class III, Fabric 2.
14) South Rings, Inner Circuit, Slot 7, upper fill (Spit 1). Burnished shoulder sherd decorated with fingertip impressions, Fabric 2.
15) South Rings, Inner Circuit, Slot 7, upper fill (Spit 3). Cup decorated with shallow tooled linear lines. Form H, Class V, Fabric 5.
16) South Rings, Inner Circuit, Slot 7, upper fill (Spit 1). Polished bowl, Form H, Class IV, Fabric 5.
17) South Rings, Inner Circuit, Slot 1, upper fill (Spit 1). Rim sherd with neck cordon decorated with fingernail impressions, Fabric 17.
18) South Rings, Inner Circuit, Slot 2, upper fill (Spit 1–3). Burnished body sherd decorated with shallow tooled linear lines, Fabric 5.
19) South Rings, Outer Circuit, Slot 11, upper fill (Spit 1). Jar decorated with stabbed impressions on the shoulder. Form D, Class I, Fabric 7.
20) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Base with fingertip decoration. Base Form D, Fabric 3.

Figure 3.29. Pottery catalogue illustrations (I; detailed in text).

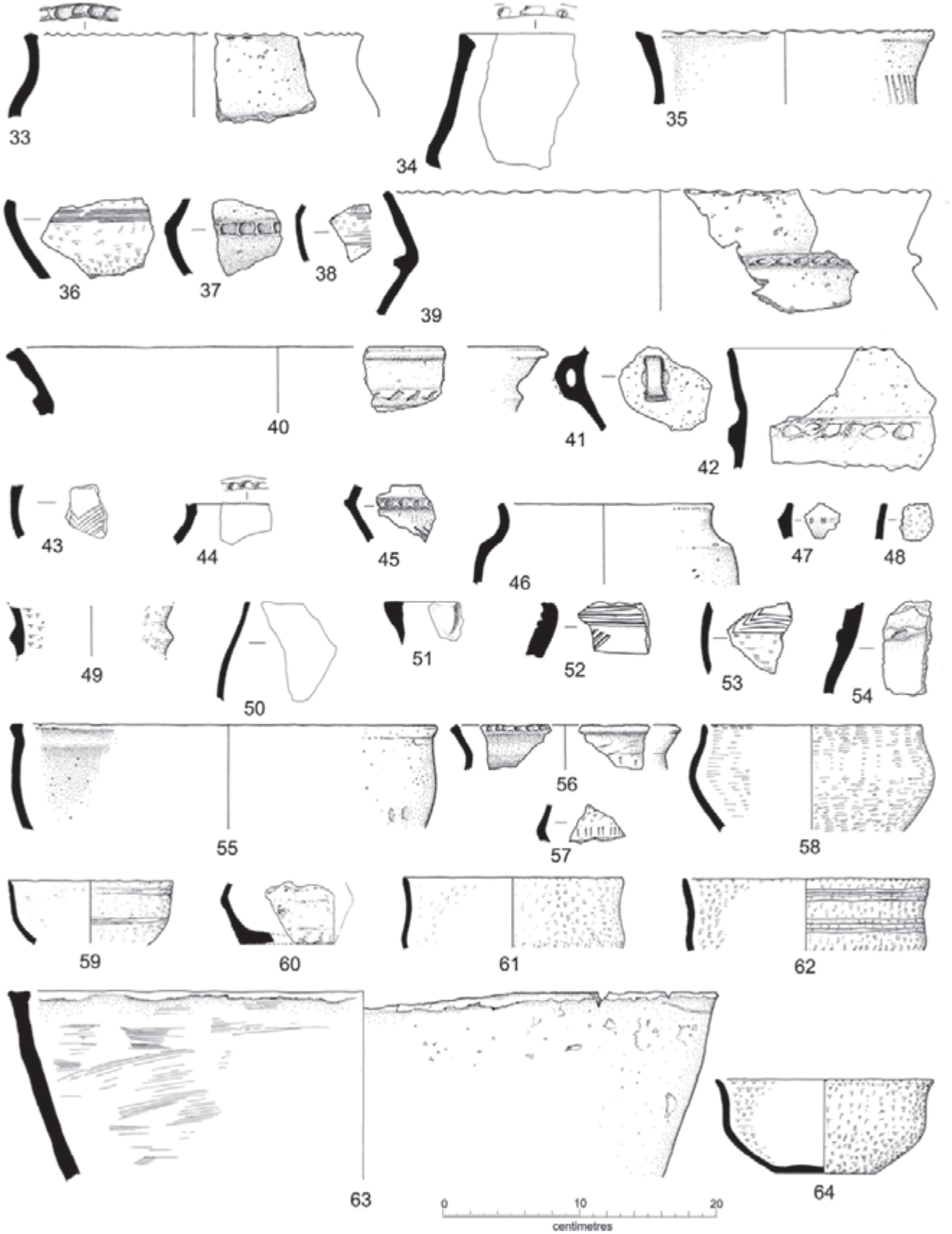


Figure 3.30. Pottery catalogue illustrations (II; detailed in text).

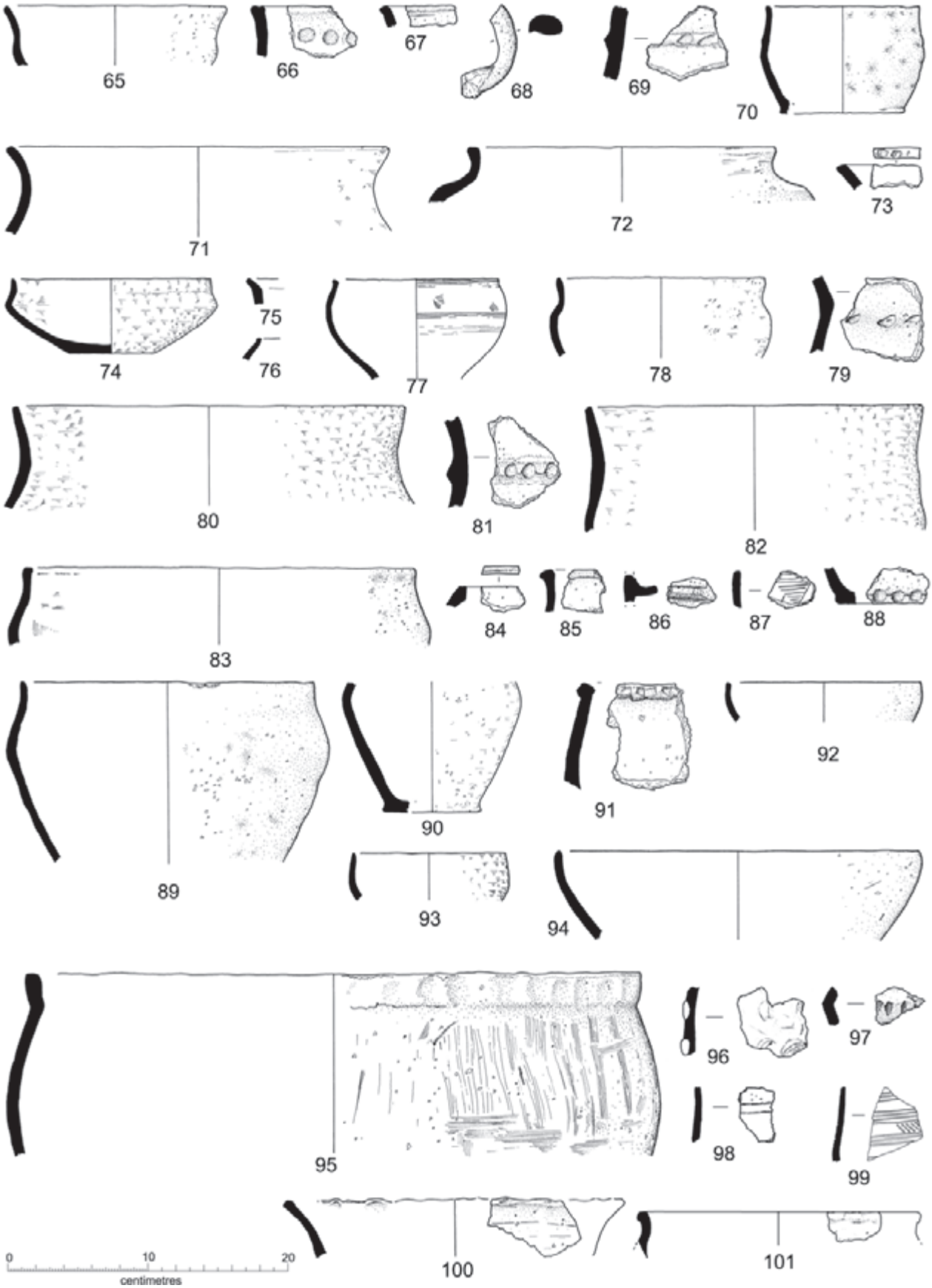


Figure 3.31. Pottery catalogue illustrations (III; detailed in text).

21) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Rim sherd pinched along the rim top, Fabric 9.
22) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Burnished jar, Form A, Class II. Base Form C, Fabric 5.
23) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Shoulder sherd with fingertipped cordon, Fabric 3.
24) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Polished sherd with horizontal combing on the shoulder, Fabric 4.
25) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Base Form D, Fabric 9.
26) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Burnished base sherd? Fabric 2.
27) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Burnished jar, Form N, Class II, Fabric 6.
28) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Base sherd, Fabric 6 (no form recorded).
29) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Jar, Fabric 8.
30) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Rim sherd decorated with fingertip impressions along the rim top, Fabric 5.
31) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Shoulder sherd with fingertipped cordon, Fabric 6.
32) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Polished rim sherd with fingertip impressions along the outer rim edge, Fabric 14.

Figure 3.30

33) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Jar decorated with fingertip impressions on the rim top. Form D, Class I, Fabric 6.
34) South Rings, Inner Circuit, Slot 4, upper fill (Spit 3). Jar decorated with fingertip impressions on the rim top. Form C, Class I, Fabric 9.
35) South Rings, Inner Circuit, Slot 4, upper fill (Spit 2). Polished sherd with horizontal combing on the shoulder, Fabric 5.
36) South Rings, Inner Circuit, Slot 4, upper fill (Spit 2). Rim sherd with fingertipped rim top and shallow tooled linear lines on neck, Fabric 6.
37) South Rings, Inner Circuit, Slot 6, upper fill (Spit 2). Shoulder sherd with pinched decoration, Fabric 5.
38) South Rings, Inner Circuit, Slot 6, upper fill (Spit 3). Polished body sherd with shallow tooled linear lines, Fabric 4.
39) South Rings, Inner Circuit, Slot 2, upper fill (Spit 1). Jar with fingertipped rim top and cabled neck cordon. Form F, Class I, Fabric 11.
40) South Rings, Inner Circuit, Slot 2, upper fill (Spit 1). Jar with stabbed shoulder (neck cordon?). Form F, Class I, Fabric 8.
41) South Rings, Inner Circuit, Slot 3, upper fill (Spit 3). Handle, Fabric 5.
42) South Rings, Inner Circuit, Slot 3, upper fill (Spit 2). Rim sherd with fingertipped neck cordon, Fabric 8.
43) South Rings, outer ring, Slot 12, upper fill (Spit 3). Burnished body sherd with combed decoration, Fabric 21.
44) South Rings, Outer Circuit, Slot 9, upper fill (Spit 1). Rim sherd decorated with fingertip impressions along the interior rim edge, Fabric 5
45) South Rings, Outer Circuit, Slot 9, upper fill (Spit 2). Shoulder sherd with fingertip decoration, Fabric 5.
46) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Burnished jar, Form N, Class II, Fabric 5.
47) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Burnished shoulder sherd with fingernail impressed cordon, Fabric 10.
48) South Rings, Inner Circuit, Slot 2, upper fill (Spit 1). Polished bowl, Form H, Class IV, Fabric 8.
49) South Rings, Inner Circuit, Slot 4, upper fill (Spit 1). Sherd with fingertipped cordon, Fabric 25.
50) South Rings, Inner Circuit, Slot 4, upper fill (Spit 2). Burnished bowl, Form G, Class IV, Fabric 5.
51) South Rings, Inner Circuit, Slot 3, upper fill (Spit 2). Rim sherd, Fabric 3.
52) South Rings, internal feature, Roundhouse 5. Burnished neck sherd with shallow tooled linear lines, Fabric 2.
53) South Rings, internal feature, Roundhouse 5. Polished body sherd with combed lines, Fabric 18.
54) South Rings, internal feature, Pit [391]. Shoulder sherd with fingertipped cordon, Fabric 18.
55) South Rings, internal feature, Posthole [3898]. Bowl, Form H, Class III, Fabric 4.
56) South Rings, internal feature, Pit [481]. Rim sherd with fingertipping on interior rim edge, Fabric 4.
57 South Rings, internal feature, Posthole [429]. Burnished shoulder sherd with fingernail impressions, Fabric 5.
58) South Rings, internal feature, Posthole [429]. Polished bowl, Form I, Class IV, Fabric 2.
59) South Rings, internal feature, Pit [391]. Polished bowl with shallow tooled linear lines on the neck and shoulder. Form H, Class IV, Fabric 5.
60) South Rings, internal feature, Pit [3726]. Polished bowl, Form I, Class IV, Fabric 3.
61) South Rings, internal feature, Pit [3726]. Polished bowl, Form M, Class IV, Fabric 3.
62) South Rings, internal feature, Pit [3726]. Polished bowl with horizontal combed lines. Form M, Class IV, Fabric 5.
63) South Rings, internal feature, Posthole [431]. Jar, Form Q, Class I, Fabric 8.
64) South Rings, internal feature, Pit [3726]. Polished bowl, Form M, Class IV, Fabric 3.

Figure 3.31

65) South Rings, internal feature, Pit [3726]. Polished bowl, Form M, Class IV, Fabric 3.
66) South Rings, internal feature, Pit [391]. Rim sherd with fingertipping on the rim top and neck, Fabric 9.
67) South Rings, internal feature, Pit [391]. Rim sherd, Fabric 6.
68) South Rings, internal feature, Posthole [431]. Handle, Fabric 11.
69) South Rings, internal feature, Pit [391]. Sherd with fingertipped cordon, Fabric 9.
70) South Rings, internal feature, Pit [395]. Bowl, Form I, Class III, Fabric 6.
71) South Rings, internal feature, Posthole [3755]. Rim, Fabric 6.
72) South Rings, internal feature, Posthole [3755]. Jar, Form N, Class I, Fabric 8.
73) South Rings, internal feature, Posthole [475]. Rim

Table 3.14. List of radiocarbon dates referenced in the text. Radiocarbon ages and information on dated material are taken from the Archaeological Site Index to Radiocarbon Dates from Great Britain and Ireland, published online by the Archaeological Data Service (calibrated using Oxcal V.3; see Meadows et al. *2013 for Springfield Lyon's later obtained AMS dates).*

Site	Context	Dated material	Lab. no.	Radiocarbon age	Calibrated date range 68.2% confidence	Calibrated date range 95.4% confidence
Mucking North	Phase 5 ditch silts	Charcoal (Acer *sp*, Quercus *sp and* Corylus/Alnus *sp of mature timbers*)	HAR-2911	2700± 80 BP	970–790 BC	1150–550 BC
Mucking North	Phase 5 ditch silts	Charcoal (Acer *sp (mature timbers) and some* Prunus *sp*)	HAR-2893	2630±110 BP	920–550 BC	1050–400 BC
Mucking South	Outer ditch eastern entrance, primary silts	Charcoal (*twiggy* Quercus *sp and* Populus *sp from large timbers, also few ?* Prunus *sp twigs*)	HAR-1708	2810±70 BP	1069–840 BC	1200–810 BC
Mucking South	Outer ditch eastern entrance, primary silts	Charcoal (Quercus *sp and* Salix *sp*)	HAR-1634	2770±110 BP	1050–800 BC	1300–750 BC
Mucking South	Inner ditch eastern entrance, 'secondary' fill	Charcoal (*mainly* Quercus *sp and* Alnus *sp*)	HAR-1630	2790±90 BP	1050–830 BC	1210–790 BC
Springfield Lyons	Lower ditch silts [5332]	Charcoal (Acer *sp*)	BM-2313R	3090±150 BP	1510–1120 BC	1700–900 BC
Springfield Lyons	Secondary ditch silts [5153]	Charcoal (*mixed* Quercus *sp*, Acer *sp*)	BM-2314R	2570±140 BP	840–410 BC	1050–350 BC
Lofts Farm	Upper ditch fill	Charcoal	HAR-8515	2460±70 BP	760–410 BC	770–400 BC
Lofts Farm	Lower fill of Well F.840	Two outer rings of oak stake	HAR-8521	2800±70 BP	1050–840 BC	1130–800 BC

sherd with fingernail impression on the rim top, Fabric 6.

74) South Rings, internal feature, Posthole [3755]. Burnished bowl, Form K, Class IV. Base Form G, Fabric 5.
75) South Rings, internal feature, Posthole [3755]. Burnished rim sherd, Fabric 5.
76) South Rings, internal feature, Gully [433]. Burnished rim sherd, Fabric 8.
77) South Rings, internal feature, Pit [461]. Burnished bowl with combing on the exterior rim edge and shoulder. Form H, Class IV, Fabric 6.
78) South Rings, internal feature, Posthole [435]. Polished bowl, Form M, Class IV, Fabric 5.
79) South Rings, internal feature, Posthole [13371]. Neck sherd with fingertip impressions, Fabric 19.
80) South Rings, internal feature, Posthole [437]. Polished rim, Fabric 5.
81) South Rings, internal feature, Posthole [3807]. Jar with fingertipped cordon. Form D, Class I, Fabric 12.
82) South Rings, internal feature, Posthole [437]. Burnished jar, Form C, Class II, Fabric 5.
83) South Rings, internal feature, Posthole [495]. Jar, Form E, Class I, Fabric 12.
84) South Rings, internal feature, Posthole [3837]. Rim sherd with fingernail impressions on the exterior rim edge.
85) South Rings, internal feature, Posthole [3796]. Rim sherd, Fabric 5.
86) South Rings, internal feature, Gully [374]. Rim sherd with lid-seat, Fabric 12.
87) South Rings, internal feature, Posthole [3444]. Body sherd with shallow tooled linear lines (infilled chevron pattern?), Fabric 8.
88) South Rings, internal feature, Posthole [2152]. Base with fingertip impressions. Base Form J, Fabric 8.
89) South Rings, internal feature, Posthole [3755]. Burnished bowl, Form H, Class IV, Fabric 9.
90) South Rings, internal feature, Pit [387]. Burnished base. Base Form J, Fabric 17.
91) South Rings, internal feature, Pit [387]. Rim sherd with fingernail impressions on the exterior rim edge, Fabric 11.
92) South Rings, internal feature, Pit [399]. Burnished bowl, Form I, Class IV, Fabric 2.

93) South Rings, internal feature, Posthole [415]. Polished bowl, Form H, Class IV, Fabric 2.
94) South Rings, internal feature, Posthole [13957]. Bowl, Form H, Class III, Fabric 9.
95) South Rings, internal feature, Posthole [3444]. Jar, Form A, Class I, Fabric 14.
96) Posthole [26006]. Body sherd with fingertip impressions, Fabric 5.
97) Posthole [26000]. Shoulder sherd with fingertipping, Fabric 4.
98) Posthole [25756]. Burnished shoulder sherd with shallow tooled linear lines, Fabric 2.
99) South Rings, internal feature, Pit [405]. Polished sherd with combed horizontal lines and shallow tooled linear lines, Fabric 2.
100) Pit [25564]. Bowl with fingertipped and fingernail impressed rim top. Form L, Class III, Fabric 5.
101) Posthole [12870]. Jar with fingertipping on the exterior rim edge. Form D, Class I, Fabric 7.

Discussion

When dealing with such a large and varied assemblage of Late Bronze Age pottery, it is difficult to decide what the appropriate scale of analysis should be. This report has attempted to characterise the pottery at a number of interrelated scales, moving from broad discussion of the overall assemblage, though to comparisons of the sub-groups from the inner and outer rings; the internal features and extra-mural settlement, and finally, the pottery in the stratigraphic sequence of ditch fills. Each scale of analysis has revealed new patterns and points for discussion, not all of which have been taken to their logical conclusion. The aim of this summary is to consider the dating of the assemblage, and to outline how we might understand some of the changes to the Late Bronze Age repertoire in the context of the South Rings.

Date and Affinities

For over two decades, pottery specialists working in Eastern England have looked to Essex for an understanding of developments in Late Bronze Age ceramics. It is the sites with stratified deposits from the county that have provided the clearest evidence for changes to the Late Bronze Age ceramic repertoire (Needham 1996a, 255; Brown 1996, 29; Brown 2001, 95). These changes are now well documented, and the trend from 'Plainware' to 'Decorated' PDR pottery has been aptly demonstrated at a number of sites including Springfield Lyons (Brown 1987a and 2013), Mucking North Ring (Barrett & Bond 1988), Lofts Farm (Brown 1988b), and to a lesser extent at sites such as South Hornchurch (Harrison 2000) and Great Baddow (Brown 1994). The evidence from Mucking South Rings confirms these well established patterns, and adds further detail to our understanding of how the pottery changes; not only in terms of decoration and decorative frequencies, but also with regard to forms, vessel sizes and the character and location of deposition.

The pottery from the lower fills of the ditches belongs to the 'Plainware' phase of the PDR ceramic tradition (Barrett 1980). The material is characterised by a narrow range of round-shouldered jars and bowls with a low incidence of decoration, executed by finger-working rather than tooling. It is suggested, however, that this assemblage is 'late' within the Plainware tradition, as there are no straight-sided or convex-walled, hooked-rim jars (Form B). These types of Class I jar are common in Plainware assemblages, and are present in the lower primary/lower fills of the Springfield Lyons ditches (Brown 2013) and the Phase 1–2 deposits of the Period I ditch at Mucking North Ring (Barrett & Bond 1998, 29, fig. 20, nos. 3 & 8). They are also found in other Plainware groups from Essex, with good examples from the lower ditch fills at Lofts Farm (Brown 1988b, 265, fig. 14, no. 14), South Hornchurch (Harrison 2000, 342, fig. 17, nos. 16, 23, 47 & 57–58), Broads Green (Brown 1988a, 12, fig. 5. nos. 4 & 5); Stansted (Brown 2004, 44, fig. 40, nos. 5 & 11) and Grange Lane (Timby *et al.* 2007, 42, fig. 2.17, no. 6). The absence of these Plainware forms in the South Rings ditches implies that deposition occurred no earlier than the ninth century BC. This raises the possibility that the ringwork was constructed after that at Springfield Lyons and Mucking's North Ring.

It has always been assumed that occupation of the South Rings preceded that of the North Ring, owing to the radiocarbon dates (Barrett & Bond 1988, 37). However, the samples were taken from very different parts of the stratigraphic sequence, and are not directly comparable. The two dates for Mucking North Ring derive from charcoal of questionable age (Needham 2007, 48). The samples were taken from the Phase 5 upper ditch silts, belonging to the recut Period II ditch (Bond 1988, 55; HAR-2911 and HAR-2893). The calibrated dates (at 94.5% confidence using OxCal V.3, Table 3.14) are broad, but fall within the LBA to EIA time-frame. Two of the three dated samples from the South Rings derive from charcoal in the primary fills of the outer ring's eastern entrance (Clark 1993, 35); one from Sample Slot 8, Spit 9 (HAR-1708, coordinate 140N × 440.9E, equivalent to Context [309]), the other from Sample Slot 14, Spit 9 (HAR-1634, coordinate 165N × 345E, equivalent to Context [309]). The calibrated dates are also inexact, but accord well with a Late Bronze Age bracket. It is possible, therefore, that the South Rings were constructed slightly later than the North Rings. Unfortunately, the current radiocarbon dates are too vague to give a refined sense of sequence, and so the chronological relationship between the two enclosures remains debatable.

The early chronology of the Springfield enclosure is more secure, even though the radiocarbon date from the lower silts is unhelpfully imprecise (BM-2313R). The Plainware pottery from the primary/lower fills was found in association with clay moulds for Ewart-type swords. Based on the back-dating of Ewart metalwork (Needham *et al*. 1997) and a chronological review recently published by Stuart Needham (2007, 48), we can be confident that that enclosure construction occurred at a time when Ewart swords were still in production, presumably before the end of the ninth century BC.[10]

In the South Rings, some of the pottery from the middle fills of the ditch can be matched in Decorated PDR assemblages of the Late Bronze Age/earliest Iron Age

transition. The pottery from these layers is the most difficult to interpret because the spits cross-cut both the lower and upper fills of the ditch. It is, therefore, impossible to judge whether this is a distinct horizon of ceramic deposition, or whether the assemblage is simply a combination of pottery from lower and upper ditch fills caught in an arbitrary division. Accordingly, it is unwise to try and find direct comparisons for pottery with other sites as the 'integrity' of this group may have been compromised. Whatever the origins of this pottery, there are marked changes to its character: the incised frequency of decorated vessels, changes to the type and location of decoration, the appearance of incised linear motifs on the finewares, and the expansion of the ceramic repertoire to include angular bipartite bowls, jars and tripartite bowls. These traits are all associated with Decorated PDR assemblages which emerge toward the end of the ninth century BC (Needham 1991, 377) and characterise ceramics of the Late Bronze Age/ earliest Iron Age transition. A single radiocarbon date was obtained from charcoal in the 'secondary' fills of the ditch (Clarke 1993, 35), though there is some ambiguity about which spit it was taken from. Other than site co-ordinate, locating the charcoal in Sample Slot 1 through the inner ditch of eastern entrance (HAR-1630; 144 × 293), no reference could be found to it in the archive to indicate from what spit or context the sample was taken. The only hints were on the sections, which imply derivation from Spit 4, in this instance, equivalent to the 'charcoal layer' or context [3520]. In other words, it may have been taken immediately above the true 'secondary fill'. The date itself falls within the Late Bronze Age spectrum, and is not significantly different to those from the primary fills.

Typologically, the pottery from the upper fills was similar to that in the middle horizon, though the succeeding repertoire displayed a more expanded and elaborate range of vessel forms and decorative treatments. A site-by-site comparison of these would be a lengthy task, and is beyond the scope of this report, given the array of subtle distinctions both within and between regions. However, it is important to stress that the character and composition of this late pottery is entirely consistent with other major Decorated PDR assemblages from Essex, including those from middle and upper fills at Springfield Lyons (Brown 2013); the Phase 5–6 deposits of the Period II ditch at Mucking North Ring (Barrett & Bond 1988, 30–31, figs. 21–22, nos. 26–64), and the pottery from the upper fills of the Lofts Farm enclosure ditch and lower fills of an external well (Brown 1988b, 265–266, figs. 14–15, nos. 27–45 & 45–54). These horizons are all associated with radiocarbon dates, though few have the precision we need to chart the development across the Late Bronze Age/ earliest Iron Age transition, now dated at *c.* 800 BC.

The dates from Mucking North Ring have already been discussed and, as Needham notes (2007, 48), the date from HAR-2893 would in no way conflict with an eighth-century BC origin for the Decorated Phase 5–6 assemblage. The same could be argued for the assemblage from the middle fills of the Springfield enclosure, associated with a date of 2570 ± 140 BP (BM-2314R) from a charcoal sample (although the large standard deviation reduces its usefulness; see Meadows *et al*. 2013). More telling is the charcoal date from upper ditch fills at Lofts Farm (HAR-8515), which when calibrated falls within the earliest/Early Iron Age bracket. The same cannot be said for the date from the oak stake from well 840 (Brown 1988b, 293; HAR-8521), which gives an earlier, more conventional, Late Bronze Age date. Clearly, more high-precision dating is needed to refine our chronologies. However, when we pull this evidence together, we may conclude the Decorated assemblages from the upper fills of the South Rings were probably deposited sometime after the late ninth century BC, and may have a currency spanning the eighth, and possibly the early–mid seventh century BC. In other words, this horizon may date anywhere within a 200-year bracket between *c.* 850–650 BC.

Overall, we may summarise that the ceramic sequence at the South Rings began with the deposition of a 'late' Plainware assemblage in the basal fills, sometime in the ninth century BC. Pottery in the middle and later fills was probably accumulating by the end of this century, and continued to be deposited in the eighth century BC, if not later. Much of the pottery from the internal features may also be contemporary with the late ditch deposits, though it is impossible to adequately untangle the groups without more detailed analytical work and further dating. Certainly some of these features must pre-date the enclosure's construction, as they were found within the area of the proposed banks. The absence of Darmsden-Linton style finewares, both within the upper ditch silts and internal features, suggest that there was no Early Iron Age occupation at the ringwork. This style of pottery was probably in circulation by the mid seventh century BC (Sealey 1996, 47), meaning that the ringwork was abandoned sometime during the Late Bronze Age/ earliest Iron Age transition.

Dating of pottery from the extra-mural settlement is more problematic, though the frequency of vessel decoration suggested it belongs to the transition, and is thus contemporary with the end of the South Rings sequence. However, further dating and analysis of this pottery is vital if we are to understand the true relationship between the open settlement and the ringwork.

The Pottery Sequence and Enclosure History

The sequence of pottery deposits from the South Rings does more than just document ceramic change, but informs us about the social context in which these changes took place. The aim of this discussion is to show how transformation in the ceramic repertoire occurred alongside changes in the nature, scale and location of deposition, as well as in the types of activities occurring within this space.

In the early history of the South Rings, only a small collection of pottery was deposited, though the manner of its deposition was quite specific. Almost all of the pottery was deposited around the terminals of the eastern entrances, with twice as much material being recovered from the inner ring. The pottery in these terminal deposits derived from range of different coarseware and fineware vessels. Nothing was particularly unique about these compositions, though the very high MSWs imply that the pottery was relatively 'fresh' when it entered the ditch. This suggests that sherds derived from recently broken vessels, or belonged to parts of vessels that were removed from the process of further fragmentation (curation). Given its context and condition, this pottery is likely to have formed part of 'formal' dumping events which were embedded

with meanings and associations quite different to those bound up with those of 'everyday' refuse maintenance. Such deposits of pottery and other artefacts are commonly encountered in the entrances of Essex enclosures, with examples at Springfield Lyons (Brown 2013), Lofts Farm (Brown 1988b), Broomfield (Atkinson 1995) and South Hornchurch (Guttmann & Last 2000).

Overall, the range of forms deposited in the lower fills was restricted to round-bodied bowls and round-shouldered jars. Decoration was sporadic, and was confined to the coarsewares. A minimal range of decorative techniques was used, and there was no evidence for a preferred zone of treatment.

The scale of deposition increased within the middle fills of the ditch. The Group 2 spits are the most difficult to link back to specific contexts, but are broadly equivalent to the secondary fills, and the base of the 'late fill'. This means that these ceramics were deposited during the period when the ditch and bank were no longer maintained. Much of the secondary fill is described as slumped bank material, and there is the suggestion that the bank was deliberately levelled. Dumps of 'fresh' pottery continued to be made around the eastern entrance in a similar manner to the lower fills. Much of the pottery from the outer ring was found in this zone. In the inner ring, however, most pottery was recovered from the northern ditch-arc. The nature of ceramic deposition in this zone was qualitatively different to that which occurred in the eastern entrances. Not only were larger quantities of pottery involved, but the sherds were more fragmented (as indicated by the lower MSWs). Furthermore, the material was more varied in character, containing sherds of different sizes, from different vessels (coarsewares, finewares, decorated and undecorated, *etc*.), with varying degrees of abrasion. Most of this pottery had *not* been deposited immediately after breakage; its condition suggested that sherds had more protracted post-vessel-breakage histories than those deposited in the eastern entrances. The contrast between these types of pottery deposits need not imply that the one was made with more consideration or formality than the other. There may, in fact, be qualities of the mixed matrix of fragmented and abraded sherds which made them appropriate for 'considered' depositional events.

The practices leading to the accumulation of these mixed ceramic assemblages are more difficult to reconstruct. Elsewhere it has been argued that similar assortments of material were both created on, and derive from, pre-depositional contexts such as surface rubbish heaps (Brudenell 2007, 244–5; Brudenell & Cooper 2008, 23). If this is the case, then such piles probably accumulated within the ring itself, as deposition was centred on the inner ditch (concealed from the outside by the bank between the inner and outer ditch circuit). Whilst ceramic refuse may have been brought into the enclosure, it is more likely that the refuse was generated from activities occurring within the inner ring.

Whatever the precise details behind this 'type' of deposition, it is interesting that its appearance goes hand-in-hand with marked changes in the ceramic repertoire. The pottery from the middle fills displayed a broader range of vessel forms and vessel sizes, including pottery with more elaborate profiles and angular shoulders. The evidence suggests that a growing number of fine tablewares were being used and deposited, as the frequency of burnishing increased by a third. Moreover, the incidence of decoration doubled, and for the first time, finewares now began to be embellished with incised and combed motifs. The range of decorative techniques applied to the coarsewares also increased, with the rim and shoulder forming the focus for treatment. In other words, there was now a new set of complex visual distinctions being drawn between vessels. This combination of changes indicates that pottery was becoming an important medium for display, and reflects the increasing elaboration of consumption practices at the site.

Variation in the ceramic repertoire peaked in the closing stages of Bronze Age activity at the South Rings. The most dramatic change was in the scale of ceramic deposition, which increased five-fold from the middle fills. An enormous quantity of pottery was dumped in the capping fills of the ditch, representing 77% of all the ceramics analysed from the sample slots. By weight, 88% of this pottery was recovered from the inner ring. The pottery was concentrated in specific zones, and the plots in Figures 3.25.2 and 3.25.3 probably reflect its broader distribution, with localised dumps of ceramic-rich refuse around the western entrance and the central areas of the two ditch-arcs. The analysis of the Group 1 spits suggested that most pottery was deposited in the inner southern ditch-arc. However, this is probably because Slots 2 and 3 were positioned through areas of concentration, whilst Slots 5 and 6 in the north ditch-arc fell between them.

The types of pottery deposits were similar to those in the middle fill. Parts of the eastern terminals continued to receive large 'freshly' broken vessel fragments, though the contrast between these and other 'types' of deposit was less distinct than in the lower horizons. Most pottery clearly derived from the large, localised dumps in the western half of the inner ring. The ceramics within these deposits were of mixed composition, similar in character and condition to those in the middle fills of the inner northern ditch-arc. Once again, there was little to no evidence that different types of sherds received differential treatment in the manner or location of their deposition. The practices responsible for the generation, accumulation and deposition of these ceramic-rich refuse dumps may be similar to those which gave rise to concentrations in the northern ditch-arc of the middle fills, albeit on a much larger scale. If this is the case, we might envisage one or more large rubbish heaps forming within the Rings' interior, perhaps individual piles being located near to the point where the pottery was ultimately deposited. These piles may even have spilled into the ditches, now that the banks were denuded.

More fine-grained analysis would be needed before we could adequately reconstruct the practices of deposition. This is beyond the scope of this report, though future work with refitting and sherd-size analysis would give further insight into these processes. What is clear is that, during the final part of Bronze Age occupation, pottery was being broken and deposited on a completely different scale. Given that the 14-slot sample represents *c.* 25% of the total pottery recovered from the South Rings, we can estimate that around 1064 vessels were deposited during the final phase of silting (estimated using the rim count). It seems unlikely that this quantity of refuse was generated through years of accidental breakage, accumulation and discard by

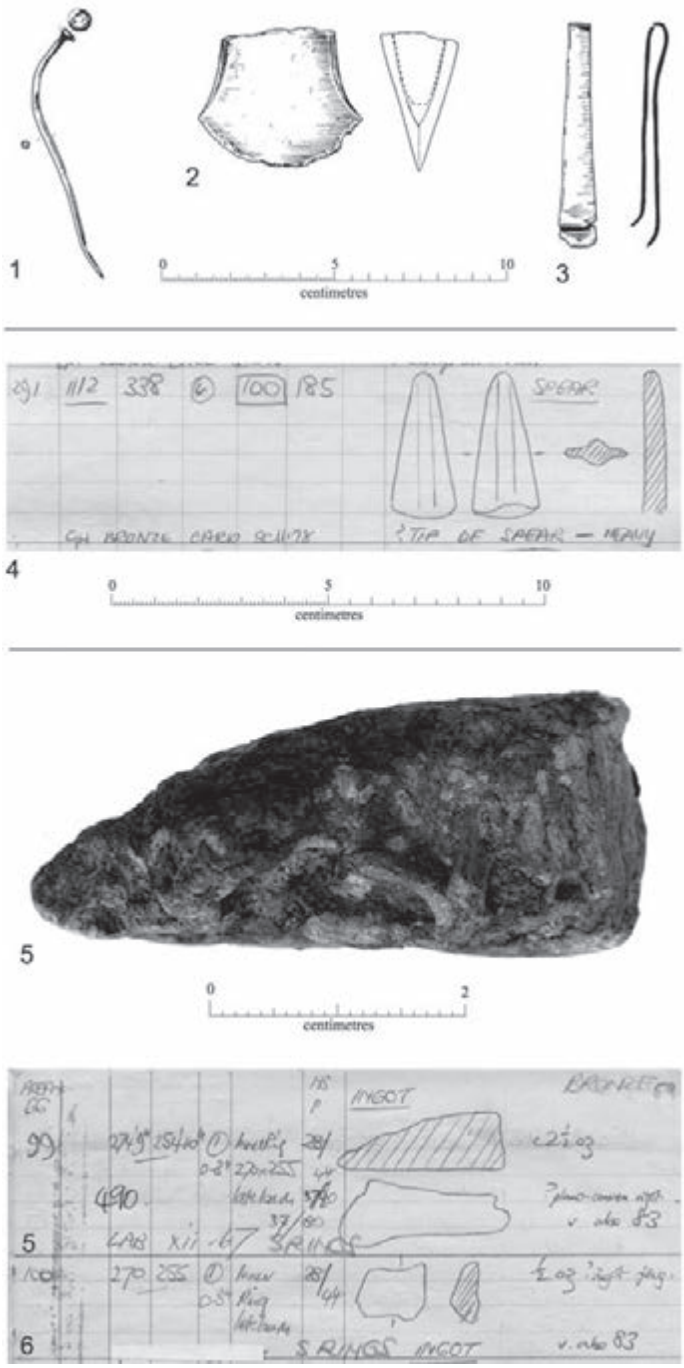


Figure 3.32. Metalwork: 1) Flat-headed pin; 2) axe; 3) tweezers; 4) spearhead fragment; 5-6) copper ingots.

a single resident household group, and instead we may be witnessing *a build up of material generated in periodic group gatherings at the site*.

These events may have required numerous vessels for the large-scale preparation and consumption of foodstuffs. Some of these vessels may have been produced exclusively for them, perhaps being deliberately broken as displays of conspicuous consumption. The resulting debris may even have been gathered into rubbish heaps, which themselves would have provided further visible evidence of excess. It is within the social context of communal gatherings that we should try to understand the changes to the South Rings' ceramic repertoire. The pottery from this horizon displayed the widest range of forms and vessel sizes, and the greatest diversity of decorative schemes. The repertoire saw the addition of angular tripartite jars and new types of decoration, including a variety of plain and fingertip/-nail impression cordons. More broadly, there was an emphasis on tablewares, as reflected by the proliferation of Class IV bowls in the assemblage, and the high incidence of burnishing. Together, there can be seen an increasing investment in the appearance of vessels. Surely it cannot be a coincidence that

ceramic 'elaboration' peaked at the same time that huge quantities of pottery were deposited, and that these only occurred after the earthworks had fallen into disrepair?

It is argued that these processes went hand-in-hand. The diversification and elaboration of vessel form, size and decorative schemes, were central to these events through which new forms of social authority were created and maintained. Pottery was drawn into emerging arenas of social competition, and became a vehicle for establishing and reflecting a diverse set of social relationships, most importantly, the group and communal identities created in collective consumption. These acts occurred at a time when the earthwork ceased to be an imposing physical barrier. If the South Rings had started life as an exclusive, 'high status' defended enclosure with a single household residence, its role within the social landscape had radically altered by the time the capping fills were deposited. That the defences were allowed to fall into disrepair suggests that the control of access was no longer essential to the formation and maintenance of political authority. Instead, status may have been established through new social strategies which were increasingly centred on the production and consumption of foodstuffs, ceramics and other artefact types during large scale social gatherings. The new 'openness' of the site may have been important as a symbol of inclusion and access, and may have been reinforced by the deliberate levelling of the bank.

Metalwork and Metalworking

In the course of excavation and subsequent post-excavation assessments a number of artefacts and small finds associated with non-ferrous Late Bronze Age metalworking at Mucking were identified. Variously reported on by Howard (refractory evidence), Northover (ingot metallurgical analysis), Dungworth and Bayley (EDXRF analysis of the moulds) and Roberts (copper alloy objects), these form a coherent assemblage that attests to the occurrence of on-site copper alloy metalworking and usage. As such, the evidence comprises (see Fig. 3.21 for distribution):

Six mould fragments for the probable manufacture of spearheads and swords (Fig. 3.33.5–7)

Four ingot fragments from the northern outer ditch (268N × 206E, cat. no 66/83; 274N × 54E, cat. no. 66/99 – *metallurgically analysed*; 270N × 255E, cat no. 66/100; 247N × 525E, cat. no. 194, serial no. 772; 220N × 500E, cat. no. 66/199, serial no. 777; Fig. 3.32.5–6)

A minimum of 20 copper alloy objects, including spearhead fragments (80N × 307E, cat. no. 66/2; a residual spearhead fragment from GH100, cat. no. 66/291; Fig. 3.32.4) and an axe fragment (162N × 141E, cat no. 66/20; Fig. 3.32.2)

A fragment of copper alloy slag (not located) recovered from a pit cluster (196N × 243E) inside Roundhouse 5.

Due to the passage of time and the number of individuals involved in the analysis of these items, it has not been possible to locate all of those reported or mentioned in the following reports. Where such gaps exist these are clearly indicated.

Metalwork (Ben Roberts)

In addition to various items of Roman and Anglo-Saxon metalwork, 13 pieces were recovered that are likely to have been contemporary with the usage of the ringwork. Items are recorded by their 'Bronze' number (Br.) as recorded in Notebook 55.

1) Copper alloy possible strap end or belt fitting (Br. 388) - Heavily corroded flat rectangular form that gradually tapers to a flattened point. Patina is light green and brown. Further probable post-depositional damage can be seen as two straight gouged lines on one side. No decoration is visible.

Find Nos. 744683 and Bronze 388; Notebook 246.53. 124N × 325E Level 2 at 6–12″. Context of clay pit – "dark fill – 9″. L. 56.0mm; W. 3.0–10.0mm; Th. 3.0–4.0mm; Wt. 10.2g.

2) Copper alloy socketed axe blade fragment (Br. 20; Fig. 3.32.2) - Heavily corroded and pitted blade that is broken 12mm from the end of the socket. The blade is slightly flared and heavily chipped. Patina is dark brown with light brown patches. It is not sufficiently diagnostic to ascertain socketed axe type.

Find Nos. 2663 and 6620, Bronze 20 and Lab 15. 162.9N × 141.0E. Level 1 from a ditch. L. 32.0mm; W. 27.0–39.0mm; Th. 2.0–15.0mm; Wt. 57.2g.

3) Copper alloy tweezers (Fig. 3.32.3) - Flat rectangular strips tapering towards the top where previously the metal was bent back on itself to form the tweezers and now there is a post-depositional break. At the terminals of the tweezer ends, the metal curves upwards. The surface is fairly corroded and the patina is light green with occasional patches of dark green. Aside from the break, damage includes two chipped areas at the terminal of the larger tweezer fragment.

Find Nos. 401 and 17 index. 275N × 225E. Inner Ring, 0–17″ late fill, South Rings. L. 58.0 and 63.0mm; W. 4.0–8.0mm and 4.0–8.0mm; Th. 1.0 and 1.0 mm; Wt. 3.0 and 4.0g.

4) Copper alloy bracelet fragment (Br. 24) - Heavily corroded, pitted and chipped bracelet fragment broken at both ends. Decoration on the external side comprises three parallel lines 4mm apart engraved into the surface. Patina is dark brown.

Find Nos. 6624, Bronze 24 and Lab 14. 140N × 260E. Level 1, Feature RBI G. L. (curved) 56.0mm; W. 4.0mm; Th. 1.0mm; Wt. 5.0g.

5) Copper alloy pin (Fig. 3.32.1) - Flat-headed pin with round sectioned shaft bent towards the head. Patina is light green and only mild corrosion present. Part of the head and the shaft are badly chipped and the point is broken.

Find No. Lab 661; Notebook 45.69. 196.0N × 350.0E. Primary fill of outer ring, 20–24″. L. (curved) 55.0mm; Th. 1.0–3.0mm; Wt. 1.3g.

6) Copper alloy lump/ingot (Fig. 3.32.6) - Irregular shaped

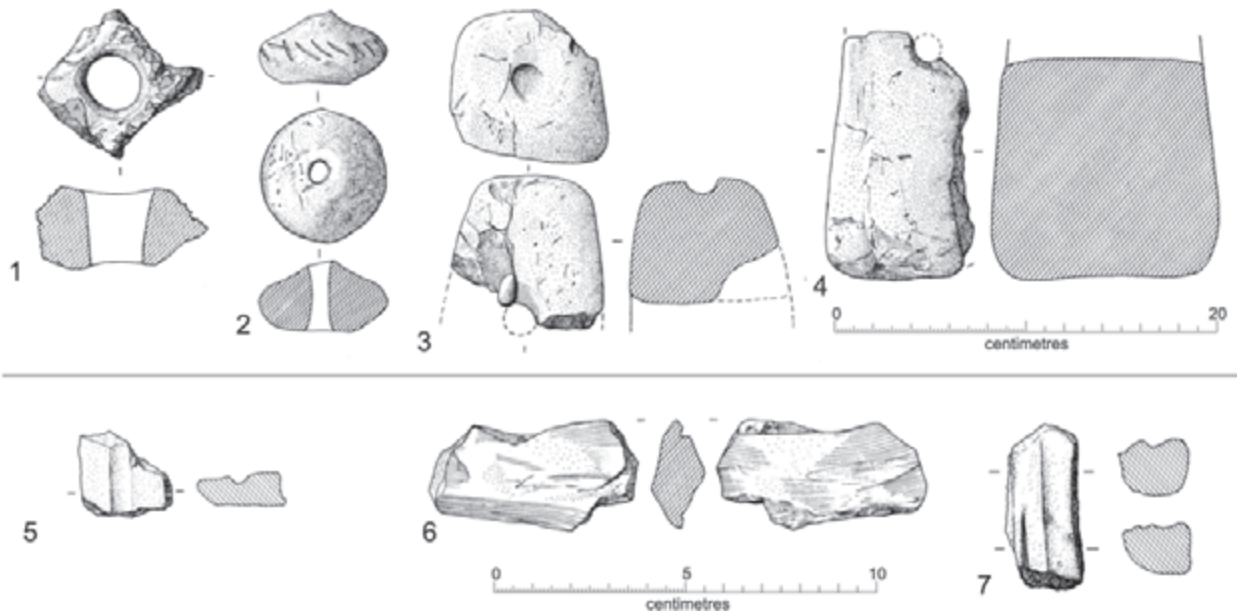


Figure 3.33. Fired Clay: 1) Oven fragments; 2) spindlewhorl; 3–4) loomweights; 5–7) spear moulds.

Table 3.15. Concordance of Bronze Age refractory sherds/moulds (note: MU1–6 = North Ring); dates are derived from AML report (Dungworth & Bayley 1999).

Sample No.	AML No.	Excavation number	Date	Identification
MU1		S23.C22.4509	LBA	Fired ceramic, non-refractory
MU2		S23.C387.4172	"	Crucible
MU3		S23.C431.4253	"	Vitrified clay, ?metallurgical
MU4		S23.C23.591	"	Mould, thin blade, ?sickle; inner + outer
MU5		S23.C500.4616	"	Mould, knife or sickle; inner +outer
MU6		S23.C551.4319	"	Mould, ?sickle; inner + outer
-	20	Vicinity of South Rings 268Nx206E	"	Mould; cast only
-	21	268Nx206E	"	Mould; cast only
MU7	22	Pit 109Nx281E	"	Mould, ?spearhead; outer
MU8	23	Pit 159Nx260E	"	Mould, ?spear; inner
MU9	24	Pit 159Nx260E	"	Mould, ?spearhead; inner + outer
-	25	SIR 120Nx230E	LBA?	Mould

lump with a smooth surface and only occasional pits and striations. Patina is dark green with brown patches.

Find No. 777. 220N × 500E. L. 26.0mm; W. 11.0mm; Wt. 26.8g.

7) Copper alloy lump/ingot (Br. 194; Fig. 3.32.5) - Irregular shaped lump with a smooth surface and only occasional pits and striations. Patina is light green with brown patches.

Find No. 772, Bronze 194 and Lab 820881; Notebook 63.27. 274.9N × 254E. Found re-cleaning clay feature. L. 48mm; W. 11.0mm; Wt. 70.9g.

8) Copper alloy fragment (Br. 546) - Irregular shaped broken flat fragment with a heavily corroded surface. Patina is light green with frequent brown patches.

Find Nos. 820881 and Bronze 546; Notebook 333.75. 2356N × 940E. Level 2 3–6", Pit 2/2. L. 13.0mm; W. 11.0mm; Th. 2.0mm Wt. 2.6g.

9) Copper alloy pin (Br. 15) - Slightly bent pin with oval sectioned shaft. Head is broken, shaft is slightly bent and point is chipped. Patina is dark green and dark brown with corrosion present throughout.

Find Nos. Bronze 15 and Lab 324. 180.0N × 310.0E. Level 1, South Inner Ring Feature, E butt. L. (curved) 69.0mm; Th. 1.0–2.0mm; Wt. 1.7g.

10) Copper alloy ?pin shaft fragments (Br. 205) - Four heavily corroded round sectioned fragments. Pitted surface and light green patina.

Table 3.16. Colour variation in Bronze Age moulds.

Sample	Inner valve	Outer wrap
MU4	Grey-black with small area 10YR 7/3	Grey-black
MU5	Dark grey	Variable; includes 7-5YR 5/4, 7.5 YR 7/6 and 2.5YR 6/6
MU6	Mid-grey	7.5 YR 7/6 – 2.5YR 6/6
MU7	-	10YR 5/8 with white film on outer surface
MU8	7.5YR 7/4 in part, but mainly mid-grey	-
MU9	Mid-grey	2.5 YR 5/8 – 2.5YR 5/4

Find Nos. 753 and Bronze 205. 200N × 350.0E. Level 2 6–12″, Outer ring late fill. L. (combined) 42.0mm; Th. 1.0–2.0mm; Wt. 0.8g.

11) Copper alloy fragments (Br. 3) - Four irregularly shaped post-depositional broken flat fragments with heavily corroded surfaces. Patina is light green with dark green patches.

Find Nos. 403 and Bronze 3. 215N × 235E. Inner ditch, South Rings. L. 3.0–10mm; W. 2.0–6.0mm; Th. 1.0mm; Wt. 0.4g.

12) Copper alloy lump (Br. 207) - Irregular shaped curved lump with a pitted external surface and heavily pitted internal surface. Patina is light green with dark green patches.

Find Nos. Bronze 207 and Lab 690864; Notebook 63.27. 265N × 200E. L. 26.0mm; W. 19.0mm; Wt. 8.8g.

13) Copper alloy sheet fragments - Six irregularly shaped broken flat fragments with heavily corroded surfaces. The fragments can be be re-fitted to form a sub-rectangular sheet. Patina is light green with dark green patches.

Find No. 656. 224N × 305E. Inner ring. L. 6.0–1.9mm; W. 2.0–1.0mm; Th. 1.0mm; Wt. 2.3g.

The 13 copper alloy objects comprise a possible strap end or belt fitting, a broken socketed axe blade, tweezers, part of a bracelet, two broken pins, as well as potential fragments of a pin shaft, plus three small lumps, two flat fragments and one sheet fragment. Few of these objects are particularly diagnostic. The broken socketed axe blade and small copper alloy lumps are very common during the Late Bronze Age (*c.* 1100–800 BC) and are exemplified at sites such as Petters Sports Field, Surrey (Needham 1990; see Jones & Jones 1975, 141, fig. 48, 15). The tweezers are associated with the Ewart Park metalwork phase (*c.* 1020–800 BC) and are comparable to those found at Runnymede Bridge, Berkshire (Needham & Spence 1996, 187 and fig. 100) and elsewhere (see Needham 1990). One of the pins (196N × 350E) is a nail-headed pin comparable to those found at Heathery Burn Cave and Runnymede Bridge (O'Connor 1980, 200, list 180 and map 63; see also Jones & Jones 1975, 141, fig. 48, 16). This small assemblage of heavily corroded Late Bronze Age copper alloy metalwork was found throughout the site and does not indicate any deliberate deposition, but rather domestic disposal.

Metallurgical Analysis of the Copper Ingot (J.P. Northover)

274N × 254E (No. 7 above, original Cat. No. 66/99; Serial No. 490; Fig. 3.32.5); length, *c.* 5cm; weight, 70.9g.

The average composition from three spots on a sample taken from the outer edge of the ingot was:

0.03–0.04% nickel, balance copper,
Sn, As, Sb, Pb, Co, Fe, Ag, Au, Zn sought but not detected.

Examination of the polished sample revealed a very large number of small spheroidal inclusions, accompanied by a few that were much larger, and some that were of lenticular shape. These last were shown by etching to be aligned along grain boundaries, with an inclusion free area along one side of the boundaries only. This would suggest some grain boundary migration caused by reheating of the chilled exterior of the ingot by the still molten interior, during casting; the sample was taken from the exterior.

The composition is typical of British Late Bronze Age copper ingots; all that have been analysed to date are of considerable purity. Examples were found in the Stuntney hoard (Brown & Blin-Stoyle 1959) and an 'ingot torc' from Llanrhaiadr-yn-Mochnant, Montgomery, was also found to be of very pure copper.

Bronze casting at Mucking: The Refractory Evidence (Margaret Jones and Hilary Howard)[11]

Not all the *c.* 1.5 tonnes of fired clay from the excavations was examined in detail, nor dated. Nevertheless, in a preliminary examination, more than fifty ceramic finds positively identified with prehistoric bronze working were identified. In addition to the industrial debris from the North Ring reported upon by Needham (in Bond 1988, 21), this provided material for a broader study of prehistoric metalworking in southern Britain (Howard 1983).

Four fragments of bivalve clay mould were identified in the area of the North Ring, together with a portion of a thick walled crucible (see Needham in Bond 1988, 21 & fig. 14). Bivalve clay moulds, probably for casting spears, sockets and swords, were also recovered from the South Rings area (Figs. 3.21 & 3.33.5–7), but no crucible sherds have yet been recognised (a tuyère from the area is apparently of Iron Age attribution; see Chap. 5).

All ceramic bronze-casting residues from the North

Table 3.17. Raw material samples (Essex).

Sample Number	Grid reference	Geological notes
ESX1	TQ 652 971	Claygate Beds
ESX2	TQ 657 896	London Clay: sandy sample
ESX3	TQ 657 896	London Clay: fine sample
ESX4	TQ 673 955	Claygate Beds
ESX5 (S)	TQ 684 777	Thanet Beds; sandpit
ESX6	TQ 690 767	Thames alluvium
ESX7	TQ 657 779	Thanet sand
ESX8	TQ 657 779	Sandy Brickearth over Thanet Sand

Table 3.18. EDXRF results from mould fragments (from Dungworth & Bayley 1999).

AML Catalogue	North	East	Fired clay no.	Found	XRF	Feature and location
20	268	206	2599	cast only	cast only	Vicinity of South Rings
21	268	206	2600	cast only	cast only	Vicinity of South Rings
22	109	281	2596	yes	Zn	Pit, South Rings
23	159	260	2598	yes	Cu, Zn, Pb	Pit, South Rings
24	159	260	2598	yes	Cu, Zn, Pb	Pit, South Rings
25	120	230	2597	yes	Cu, Zn	South Inner Ring

Ring excavation area were examined (save one mould fragment which could not be located), and small fragments removed for petrological examination. All similar material identified from the South Rings was also examined thus, with the remainder of material from the site examined in hand-specimen; pieces were selected for analysis on the basis of typology, fabric and, to some extent, context.

Ceramic refractories from Iron Age contexts were also examined for comparison with the Bronze Age debris. Included were numerous crucible fragments and several remnants of ring-mould, similar to others found at other sites, including Gussage All Saints, Dorset (Foster 1980), Grimsby, South Cadbury, and Beckford (Howard 1983). Although the analysis of Iron Age sherds is not described in detail here, a fabric summary is provided in Chapter 5 (and a list of sectioned pieces included in Table 3.15).

Fabric 1 (MU2/North Ring) – This sherd (see Needham in Bond 1988, 22 & fig. 14.5) is reduced to mid-grey through most of its 33mm maximum thickness. A maximum 7mm outer layer is oxidised to red (2.5 YR 5/8). The inner part is coated with a thin (*c.* 1mm) layer of light green slaggy material. Analysis of the latter showed it to consist of copper and lead metal residue (J. Bayley pers. comm.). The fabric feels extremely sandy and rough to the touch. A sparse scatter of rounded voids is visible across a freshly fractured face, but only one fine quartz sand and a very rare glint of mica can be seen with the aid of a x10 lens.

In thin-section the crucible is seen to have been formed of a slightly micaceous clay containing, or tempered with, some 55% of sub-rounded quartz sand. Most of this sand is extremely fine (<0.05mm), but larger grains (to 0.6mm) are evenly scattered throughout the section. In addition to quartz, the mainly isotropic matrix contains a little finely divided carbon (perhaps accidentally incorporated), rare mica, and detrital minerals typical of a glacial deposit.

Fabrics 4 & 5/Bronze Age Moulds – Although the Bronze Age moulds recovered at Mucking vary considerably in colour and firing condition (Table 3.16), inner matrices appear homogenous in hand-specimen. All appear to have been prepared from an exceptionally fine-textured micaceous clay. Aside from tiny reddish patches of iron oxide, inner moulds seem without inclusions. Some variation is, however, evident in the preparation of the outer wraps. In some samples the outer mould material is virtually indistinguishable from the inner matrix, whilst in others the outer wrap is considerably coarser and contains obvious inclusions of quartz sand and rarely sandstone and flint.

Fabric 4/Inner Mould (but can be used for outer wrap: inner MU4-North Ring, MU8; inner matrix MU5-North Ring, MU9; inner and outer MU6/North Ring) – Thin-sectioning confirmed the macroscopic observations described above. Fine, dense quartz is set in a generally anisotropic, ferruginous and micaceous clay matrix. Detrital minerals include plagioclase feldspar and epidote. Sample MU8 is slightly coarser than the remaining Fabric 4 samples.

Fabric 5/Outer Mould (MU7; outer wrap of MU5-North Ring and MU9) – In thin-section, quartz grains of coarser grade than those observed in Fabric 4 are seen to be set in a highly ferruginous, anisotropic clay matrix. Mica and detrital minerals are present, though much rarer than in Fabric 4. Although elongate impressions are visible on the outer face of MU5, no organics or organically produced voids are present in the section. This suggests contact with fibrous material, perhaps during the drying process.

*Table 3.19. Bronze Age spindlewhorls (*complete).*

Cat. no.	Co-ordinates		Feature	Type	Weight (g)	Mid diam. (mm)	Perforation diam. (mm)
	North	East					
South Rings							
SPW51	133	170	Inner circuit	Biconical	-	33	-
SPW53	150	300	Inner circuit	Flattened globular	-	36	8
SPW54	160	238	Outer circuit	Flattened globular	-	30	6
SPW55	172	208		Flattened globular	-	36	5
SPW56	235	295	Inner circuit	Biconical	-	35	6
SPW57	250	350	Outer circuit	Disk	-	41	9
SPW59	266	255	Inner circuit	-	-	34	6
SPW60	275	225	Inner circuit	Flattened globular	-	33	8
SPW95	125	203	Inner circuit	Biconical*	10	29	4
SPW62	355	473	Pit, Rings adjacent	Flattened globular	-	39	7
Mid-site							
SPW72	1236	124		Biconical*	38	41	8
North Site							
SPW83	2085	982	Pit	Biconical*	34	40	6
SPW84	2126	1013	Pit	Biconical*	34	40	6
SPW85	2268	1004	Pit	Biconical*	21	34	6
SPW87	2600?	880	Pit	Biconical*	26	33	-

Fabric 7/Tuyère (MU15; Fig. 5.14.1) – A tiny fragment was removed from the tuyère mouth for analysis. The fine, sandy fabric is mainly oxidised to dark orange red (2.5YR 6/8). A scatter of larger, rounded quartz inclusions and very rare, tiny fragments of flint are visible in hand-specimen. The clay appears to be slightly micaceous. Under the microscope, the tuyère fabric resembles that of the Bronze Age crucible MU2 (Fabric 1). The matrix, however, is micaceous and anisotropic, and the ratio of grains to matrix differs somewhat from that recorded in the crucible sample. A few small (to 0.2mm) angular grains of brownish flint are visible, and detrital minerals include epidote, microcline and plagioclass feldspar. An unidentified red mineral may be an alteration product caused by the penetration of metal oxides.

Resource Ecology and Raw Material Sampling

Clay and sand abound in the area surrounding the site (see e.g. Clark 1993, fig. 3). The local London Clay is deemed 'too heavy or rank' for brick-making, although it has sometimes been used for making drain-pipes. Most bricks in Essex have been made from the Claygate Beds and works were founded near major towns sited on these deposits during the nineteenth century. The local Brickearth has been worked to a limited extent (Dines & Edmunds 1925, 47). Near Billericay railway station, the Bagshot Beds were dug for moulding sand. The Bagshot sand in this area is fine textured and contains considerable material other than quartz (*ibid.*, 48). Samples were taken from each of these deposits save the Bagshot Beds (Table 3.17). An additional sample was taken from the Thames alluvium, some 5km from Mucking [see also Barford & Mainman below].

Through comparison of the fired samples with the Mucking refractories it was possible to eliminate the alluvium as a possible raw material source. The shape and size range of the quartz, and the mica/detrital content of the Brickearth sample (ESX8) suggest that this deposit, rather than the even-textured Claygate Beds, was exploited for the production of Bronze Age moulds. Sand (unlocated) may have been added to the slightly micaceous London Clay for Bronze Age crucible making; both Brickearth and London Clay are available at, or very close to Mucking.

Potential raw material sources for the sandy, non-micaceous Iron Age refractories were not located. Aside from the fine London Clay example (ESX3), all other clays collected were moderately micaceous. It is suggested that sources some distance from the site were exploited during the later occupation period at Mucking.

Mucking provided a virtually unique opportunity for comparison of Bronze Age and Iron Age refractory technology. It is unfortunate that few securely contexted finds were available for examination at the time of writing this study, although the Ancient Monument Laboratory (following further post-excavation assessments and analysis; Dungworth & Bayley 1999) examined some 95 pieces, with EDXRF analysis of the Late Bronze Age moulds from the site summarised in Table 3.18.

The results of the AML analysis on MU8 and 9 are:

23 (MU8) – A fragment from a piece of mould for a rod-like object or one with a lip or ridge. The fabric is black (reduced) on the inner surfaces and red or buff (oxidised) on the outer surfaces and contains some quartz and opaque mineral inclusions. There is no sign of a finer inner surface to the mould although this may have been eroded after the mould was used. Found with Mould No. 24 but probably used for casting a different object.

24 (MU9) – A fragment from a piece mould for a curved rod-like object. The fabric is black (reduced) on the inner surfaces and red or buff

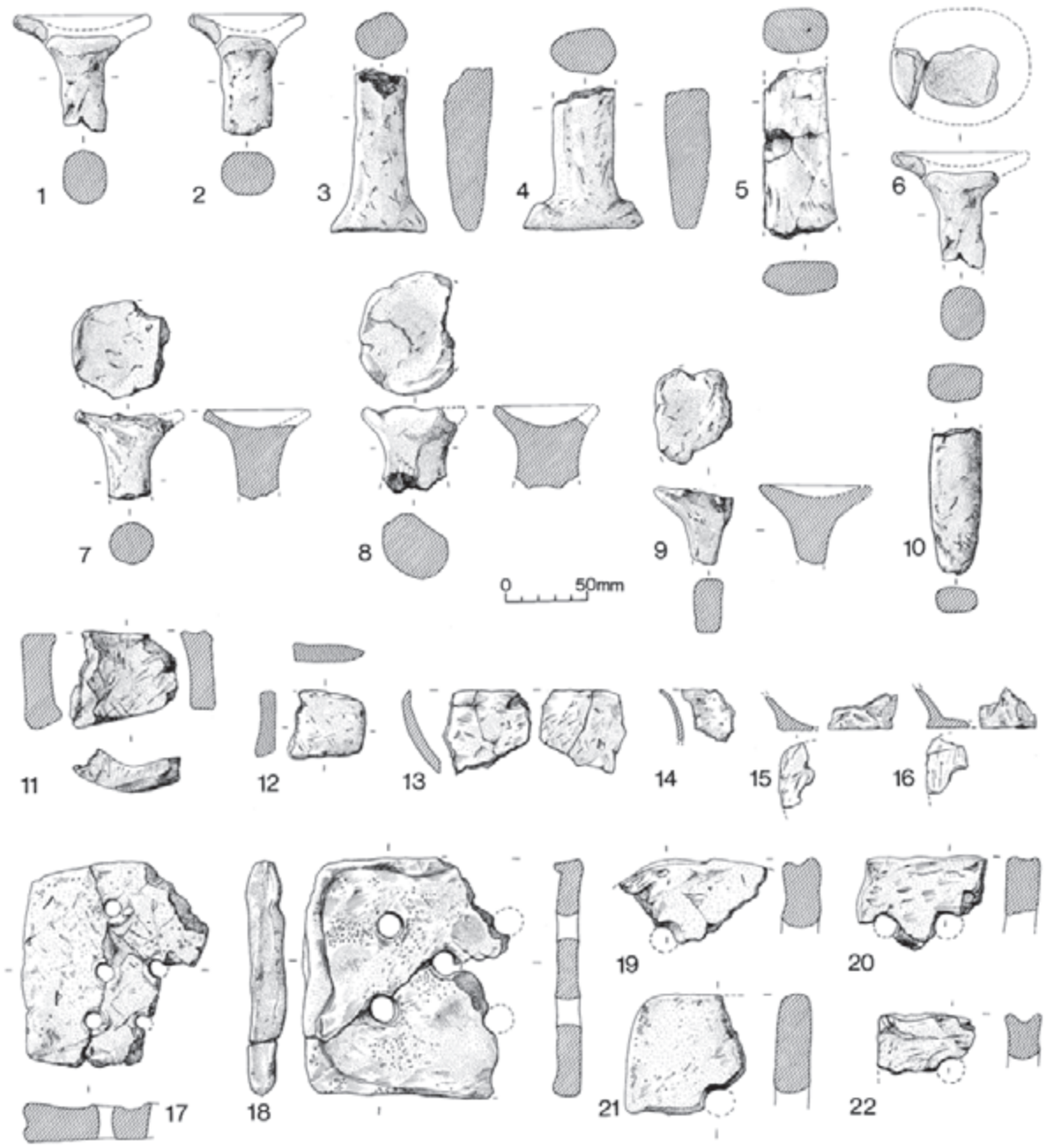


Figure 3.34. Briquetage and perforated slabs: 1–10) Pedestals; 11–12) 'Angles'; 13–16) salt vessels; 17–22) perforated slabs (see also Fig. 6.26).

> (oxidised) on the outer surfaces and contains some quartz and opaque mineral inclusions. There is no sign of a finer inner surface to the mould, although this may have been eroded after the mould was used; found with Mould No. 23, but probably used for casting a different object.

Several interesting points that merit discussion emerged from these analyses. Radiocarbon dates and the artefactual evidence obtained from both the North and South Rings indicate that these sites were occupied at about the same time during the Late Bronze Age. Contemporaneity of occupation is supported by identical mould technology practised at both sites. Inner mould Fabric 4 and 'outer' Fabric 5 appear at both North and South Rings. As Dungworth and Bayley also observe:

> The Late Bronze Age evidence consists of five or six mould fragments, all from the South Rings. This evidence is on a similar scale to that from the North Ring (Bond 1988), but is much less than that found at the site of Springfield Lyons (Buckley & Hedges 1987).[12] The fragility of ceramic mould material means that it is rarely preserved in any quantity. Large quantities of moulds are only preserved when they are quickly deposited in a large negative feature such as a ditch or pit (e.g. Springfield Lyons or Gussage All Saints). It is possible that copper alloy working was a

Table 3.20. Cylindrical loomweights (percentage completeness).*

Cat No	Co-ordinates		Feature	Weight (g)	No (%*)	Max. diameter (mm)	Max. height (mm)	Perforation diam. (mm)
	Northing	Easting						
334	2305	914	Clay Pit	475	1 (90)	83	62	20
335	2289	950	Clay Pit	395	1 (100)	75	60	22
335	2290	950	Clay Pit	910	1 (90)	95	74	12
336	2289	950	Clay Pit	685	2 (40)	97	95	12
337	2343	945	Clay Pit	125	1 (10)	73	60	17
338	786	714	Posthole	480	8 (20)	70	48	10
339	2415	956	Clay Pit	485	2 (30)	90	83	13
340	2320	987	Pit	65	2 (10)	30	40	10
341	250	185	S. Rings (Inner)	250	1 (20)	80	52	15
342	506	633	Ditch	180	1 (10)	55	55	12
343	802	205	Ditch	75	4 (10)	37	10	10
344	2302	938	Pit	1175	1 (100)	100	95	18
345	2085	982	Pit	1875	1 (100)	120	105	20
346	150	165	S. Rings (Outer)	500	3 (30)	70	86	17
347	200	225	Cleaning	1200	1 (40)	160	90	22
348	2281	1028	Clay Pit	300	1 (30)	80	75	24
349	2289	950	Clay Pit	130	1 (10)	73	32	20
350	2385	891	Clay Pit	295	4 (10)	-	-	-
351	2385	891	Clay Pit	640	1 (30)	100	65	26
352	2385	891	Clay Pit	1060	1 (90)	105	72	22
353	2385	891	Clay Pit	1050	1	95	82	20
353	2385	891	Clay Pit	770	3	100	80	20
353	2385	891	Clay Pit	210	2	72	53	20
353	2385	891	Clay Pit	575	3	84	70	15
353	2385	891	Clay Pit	500	5	70	74	11
354	1583	715	Pit	1175	1	105	100	15

significant activity in the Late Bronze Age at the South Rings, but this evidence has not been preserved.

Several hypotheses may also be proposed to explain why the bronze casting was apparently taking place at the same time in two areas separated by a mere kilometre. Thin blades, presumed to be sickles, are represented by the North Ring moulds, whilst the South Rings mould evidence attests to the casting of spearheads and probably swords. One possibility is that two smithing groups, versed in the same technological traditions, were each specialising by product to meet heavy demand. Alternatively, the North and South Rings may have been the domiciles of two high status leaders, each presiding over a limited territory, only one of whom may have 'possessed' a smith. In this case, the smith may have been 'traded' periodically to the other enclosure in return for goods or services.

In order to test the validity of such speculations, it would be necessary to know the full extent of the Late Bronze Age occupation at Mucking, the function(s) of the North and South Rings sites, and detail the duration of occupation. Further identifiable mould matrices would increase understanding of the full range of artefacts cast at each site. In light of the present knowledge, it is only possible to describe the Mucking Bronze Age refractory technology, and to note the careful and consistent (within the limited samples examined) preparation of local raw materials for inner and outer mould and crucible production.

Miscellaneous Small Finds

A small number of artefacts recovered from Late Bronze Age features, notably from the South Rings and northern areas of the site, were recovered and include three shale objects and 16 spindlewhorls.

Shale

Three shale objects, two possible bangle fragments and one bun-shaped bead-like object, were identified during excavation of the South Rings area and have been identified as of Late Bronze Age attribution. One piece is remarkably similar to the bun-shaped shale objects recovered from Anglo-Saxon contexts and *Grubenhäuser* (see Hamerow 1993) and may thus be of later date. All of the objects are described from notebook notation and sketches only.

Table 3.21. Pyramidal loomweights (percentage completeness).*

Cat. No.	Co-ordinates		Feature	Wt. (g)	No (%*)	Max. length (mm)	Min. length (mm)	Perforation diam. (mm)	Total height (mm)
	North	East							
355	1140	316	Pit	400	1 (20)	60	50	-	90
357	144	293	South Rings (I)	440	1 (20)	76	60	11	70
358	276	255	South Rings (I)	150	1 (10)	75	56	-	50
360	115	245	South Rings (I)	1450	1 (30)	115	68	10	110
361	260	270	South Rings (I)	300	1 (10)	80	45	14	50
362	248	280	South Rings (I)	200	2 (10)	35	25	11	90
363	2270	980	Dragline	1600	1 (80)	95	65	16	165
366	2174	834	Pit	230	1 (10)	30	20	14	60
367	255	280	South Rings (I)	500	3 (10)	70	65	10	70
368	180	310	South Rings (I)	855	2 (30)	72	32	13	180
370	2195	899	Pit	1250	1 (80)	90	60	17	138

Table 3.22. Summary measurements of perforated slabs.

	Distance between perforations (mm)	Max. distance of perforation to edge (mm)	Perforation diameter (mm)	Length of grooved edge (mm)	Max. length (mm)	Max. width (mm)	Max. thickness (mm)
Ave.	50.09	44.82	14.66	68.79	53.59	50.07	19.25
Max.	80	100	26	260	140	135	30
Min.	35	20	5	15	15	5	2
Mode	50	40	15	40	40	50	20

Table 3.23. Summary measurements of perforated slabs from the South Rings.

	Distance between perforations (mm)	Max. distance of perforation to edge (mm)	Perforation diameter (mm)	Length of grooved edge (mm)	Max. length (mm)	Max. width (mm)	Max. thickness (mm)
Ave.	50.09	44.82	14.66	68.79	53.59	50.07	19.25
Max.	80	100	26	260	140	135	30
Min.	35	20	5	15	15	5	2
Mode	50	40	15	40	40	50	20

Table 3.24. Summary measurements of perforated slabs from the northeastern part of the site.

	Distance between perforations (mm)	Max. distance perforation to edge (mm)	Perforation diameter (mm)	Length of grooved edge (mm)	Max. length (mm)	Max. width (mm)	Max. thickness (mm)
Ave.	53.89	46.35	14.59	50.69	50.58	43.80	18.54
Max.	75	70	21	120	120	63	25
Min.	40	30	5	20	20	25	10
Mode	45	40	15	40	45	40	20

1) 281N × 150E (Lab no. 727175) - Two fragments of round or 'D'-shaped cross-sectioned shale bracelet or bangle (examination in 1985 discovered these had disintegrated) found in the late fill of the outer ring.
2) 210N × 300E - Bun-shaped, bead-like shale object with flat surfaces and rounded edge with a central perforation. Unstratified find and similar to material found in Anglo-Saxon features.
3) 164N × 231E - Fragment of 'D'-shaped cross-section bracelet or bangle recovered from excavation of half of a small pit within the South Rings.

Spindlewhorls Paul Barford

Fifteen spindlewhorls (complete or semi-complete) were recovered, primarily from the South Rings area (nine); SPW53 was found in the primary fill of the western terminal of the southeast inner entrance of the South Rings (Fig. 3.21). One complete biconical example (SPW83) was

Table 3.25. Quantity and weight of salt-making equipment by type and feature.

Feature Description	Angle	Briquetage object	Misc.	Cupped Pedestal	Salt Vessel	Total
Ditches		2 (80g)	6 (145g)	14 (683g)	24 (70g)	46 (978g)
Grubenhäuser					49 (173g)	49 (173g)
Roundhouses	2 (30g)		5 (40g)	4 (110g)	15 (48g)	26 (228g)
Pit/postholes	246 (1.05kg)	2485 (19.32kg)	1900 (15.4kg)	351 (23.47kg)	1069 (3.82g)	6068 (63 kg)
RB features	4 (100g)		8 (30g)	2 (110g)	44 (175g)	58 (415g)
South Rings Inner	7 (240g)		32 (275g)	10 (325g)	64 (220g)	113 (1060g)
South Rings Outer			3 (35g)	10 (350g)	27 (80g)	40 (465g)
Unknown/cleaning	1 (40g)	15 (225g)	7 (740g)	10 (2935g)	2 (10g)	35 (3.3kg)
TOTAL (weight)	260 (1.47kg)	2502 (19.6kg)	1969 (16.7kg)	401 (*c.* 28kg)	1294 (4.6kg)	6426 (70.3kg)

retrieved from a pit that also contained a perforated slab, a cylindrical loomweight and later Bronze Age pottery. Each weighing approximately 25g (SPW72, 83 & 84 weighed *c.* 40g each), perforations measured between 3.5 and 5mm in diameter. All of the examples were manufactured from Fabric B (see below) with the exception of SPW95. Made from a well-fired black fabric and with a highly finished surface, the edges of the spindlewhorl were decorated with incised chevrons (Fig. 3.33.2).

Fired Clay Paul Barford

A wide array of fired clay objects was recovered. In addition to a range of salt-making pieces, this includes oven fragments, a minimum of 261 perforated slab pieces, 15 fragments of pyramidal loomweights and 54 pieces of cylindrical loomweights; as outlined in Chapter Two, the latter would seem to relate to the site's Middle Bronze Age usage.

Generally the site's fired clay was divided into four 'fabric groups' (A, B, C & M), to which various of types of vegetable matter tempering were added (fine, fine–medium and coarse; see also Barford & Mainman, below):[13]

Fabric A: Fine fabric with few visible inclusions and a noticeable 'soapy' feel. Occasionally includes small grog or ironstone or sparse angular inclusions. Least frequent and more commonly used in Late Iron Age and Early Roman objects; a sub-variant, 'Fabric D', was assigned to a small number of objects, but is petrologically similar to this fabric.

Fabric B: Fine fabric with some very fine inclusions of silt and quartz sand (*c.* 0.1–0.2mm) with a slightly abrasive feel. Sparse coarser sand grains of multi-coloured quartz and occasional angular or rounded white flint inclusions (*c.* 1mm) occur; occasional presence of small mica flecks and rounded grains of ironstone (*c.* 1mm). This fabric has a texture and range of inclusions similar to fired brickearth. Approximately 90% of the fired clay fell within this category. Frequently modified with addition of very fine vegetable matter, possibly dung.

Fabric C: Sandy fabric containing large quantities of rounded and sub-rounded multi-coloured quartz grains of varying size (very fine to medium coarse); occasional presence of flint and possibly ironstone inclusions.

Fabric M: Fine sandy fabric containing significant quantities of multi-coloured very fine and fine angular sand and occasional inclusions of mica and small (*c.* 1mm) angular white flint, rounded ironstone and rounded brown and white quartz sand (both *c.* 1mm).

Cylindrical Loomweights

The number of Middle/later Bronze Age cylindrical loomweights recovered from Mucking was relatively small. Consisting of some 54 fragments (17.76kg, max. 2175g, min. 65g, av. 657.6g; see Fig. 2.38) and manufactured from mainly Fabric B clays, these were found as two clusters (Fig. 2.35); a discrete group in the South Rings area and a distinct group from a cluster of 13 pits (33 pieces, weight 9845g), possibly associated with the Bronze Age fieldsystem, in the northern part of the site; one pit, 2385N × 891E, contained 20 fragments (5100g). The three complete and five near-complete (90%) examples were also recovered from the northern pit cluster. Cylindrical loomweights are found distributed on Middle to Late Bronze Age sites throughout central southern England, for example those found at Winnall Down, Hampshire (Bates & Winham 1985, 90); 13 weights were recovered from a single feature during quarrying at South Ockendon, Thurrock, *c.* 8km northwest of Mucking (Barford, Mucking Archive).

Pyramidal Loomweights

Fifteen later Bronze Age pyramidal loomweight fragments (7375g; Fig. 3.33.3–4) were recovered from the site (see Fig. 3.2), with average height of 97.5mm, length 73.9mm, weight 670.45g; the three heaviest fragments weighed 1250g, 1450g and 1600g; two were 'Mega' loomweights. Where present, perforations ranged between 10mm and 17mm in diameter. Three fragments possessed a dimple on top of the loomweight (cat. nos. 357, 358 & 361). Eleven fragments (3895g) were recovered from the inner ditch of the South Rings (Fig. 3.21).

Identical loomweights to those from the site were recovered from Mucking's North Ring (Bond 1988, 37), attesting to the broad contemporaneity of the assemblages. The chronology of pyramidal loomweights is not clearly understood and they may be a typological development

Table 3.26. Saddle quern stone types.

Stone type	**Saddle Querns** (No.)	**Possible Saddle Querns**
Greensand	7	1
Greensand?	1	1
Grit	0	1
Limestone	1	0
Millstone grit	1	0
Quartzite	1	0
Sandstone	12	5
Sarsen	16	8
Unrecorded	0	3
TOTAL	39	19

of earlier cylindrical weights, with examples also found during excavation of the Iron Age site at Dragonby, Lincs. (Elsdon & Barford 1996, 330).

Perforated Slabs

A number of fragmentary and substantially complete lipped perforated rectangular slabs (Fig. 3.34.17–22), primarily manufactured from Fabric B, were recovered from the site (min. 261 pieces; 12.5kg). The dimensions of the slabs, where recorded, varied with a maximum length of 140mm. The minimum number of recorded perforations on each piece varied from one to six holes, although slightly less than 60% (152 pieces) had only one or two surviving or incomplete perforations; the average distance between perforations measured *c.* 52mm. Twenty-seven fragments had no observable perforation present. Only five slabs were more than 30% complete, all from the South Rings area. Tables 3.22–4 provide measurement summaries.

A distribution plot of the perforated slabs reveals two distinct clusters. The largest cluster occurs in the area of the South Rings, reproducing the concentric nature of the monument (Fig. 3.21). Of the 210 pieces (9885g) retrieved from the enclosure, 122 (5820g) were recovered from its inner circuit, with 31 (1160g) from the outer. The remaining fragments were recovered from ditches, gullies, pits and postholes within or adjacent to the South Rings, some occurring as residual objects in later features (notably Romano-British enclosure ditches).

The second cluster of perforated slabs was located in the northeastern part of the site and consisted almost exclusively of fragments recovered from 26 pits (32 pieces; 1395g); pit 2295N × 899E contained 10 fragments (540g) and pit 2085N × 982E had six pieces (230g).

The function of perforated slabs is uncertain (Bond 1988, 39), but the close association with and similar distribution of the briquetage suggest these may have been used in salt-making. This association between perforated slabs and briquetage reflects similar results found at other Essex sites, most notably at the North Rings (*ibid.*), Lofts Farm (Brown 1988b), and examples found during excavations at Ardleigh (Area 5; Brown 1999). Similar slabs have also been found elsewhere in Britain (Champion 1980) and Europe (Harding 2000).

Salt-making Material

A significant quantity of salt-making equipment was found during excavation. In total, 6426 fragments (70.3kg) of varying completeness were retrieved, the vast majority manufactured from Fabric B (6210 pieces, *c.* 68kg). The briquetage was initially sorted into five artefact types: salt vessels (Fig. 3.34.13–16), cupped pedestals (Fig. 3.34.1–10), 'angles' (Fig. 3.34.11–12), miscellaneous and briquetage objects (see Fig. 6.26 and Barford 1990). The number of artefacts recovered from excavated contexts ranges from single items to over 1000 fragments (pit 175N × 54E; 4.65kg) and their weight varied from a few grammes to 4.65kg (ave. 129g). Twenty-six pits and postholes each contained over 50 fragments (37.9% by number and 21.4% by weight). Altogether within this category, 1955 objects were classified: 66% as salt vessels, 33.8% as supports. This ratio of vessels to supports is reflected on other sites, notably the salterns in the Fenland (Lane & Morris 2001). Approximately 88% of the assemblage (by weight and number) was retrieved from 101 pits, with 6.1% (2% by weight) coming from postholes. The remainder was recovered from the South Rings' ditches and in roundhouse gullies, as well as residual items in Iron Age and later features.

A distribution plot of the material reveals two distinct areas of deposition/activity: the northern site-area and the vicinity of the South Rings (Fig. 3.2). Occurring within 39 pits, the northern cluster accounts for 68% (4380 pieces, 40.2kg) of the assemblage; the assemblage from these was fragmentary and could only be categorised as miscellaneous items or generic briquetage (4110 pieces, 25.2kg). Interestingly, the ratio of salt vessels to pedestals from it does not reflect the overall assemblage pattern for the site, with only 22 salt vessel fragments (210g) identified from this area in contrast to the 239 pedestal pieces (16.9kg).

The South Rings-area assemblage was dominated by salt vessels (1272 pieces, 4384g), representing 98.3% of this type of salt-making equipment; 245 angles (685g), and only 135 pedestal fragments (3364g) were recovered from the South Rings-area. The outer and inner ditches of the South Rings produced 27 (325g) and 122 pieces (1100g) respectively; the outer ring yielded 17 salt vessel fragments from three excavated slots, the majority (16) from the south part of the ditch from adjacent slots. Only one piece was recovered from elsewhere in the outer ring, close to the southeast entrance (see Fig. 3.20). Seventy-three fragments

Table 3.27. Saddle querns, date of recovery-contexts by stone type (definite and possible querns).

	Date:							
Stone type	**MBA**	**LBA**	**MIA**	**Roman**	**R/Sax**	**Saxon**	**Modern**	**Unknown**
Greensand		1		3		2	1	1
Greensand?			1					1
Grit	1							
Limestone						1		
Millstone grit				1				
Quartzite				1				
Sandstone			1	5		9		2
Sarsen		2	4	4	2	5		7
Unrecorded				1		1		1
TOTAL	1	3	6	15	2	18	1	12

of salt vessel (weighing 260g) were retrieved from 11 excavated slots across the inner circuit, with 44 fragments (95g) retrieved from a single slot close to the southeastern entrance (Fig. 3.20); however, each fragment was relatively small with a maximum weight of only 20g. Nonetheless, this distribution closely matches the depositional pattern observed at the North Ring (Bond 1988, 42, fig. 28).

This assemblage is attributed to the Late Bronze Age period on the stratigraphic relationship between fills/spits from the South Rings and comparative examples from the North Ring (Bond 1988). In addition, Late Bronze Age pottery sherds were found in association with the briquetage in several of the pits, notably within the northern pit cluster; archaeometric dating of one piece provided a date of *c*. 600 BC (Jones & Bond 1980, 473). The manufacture and function of briquetage is discussed elsewhere in detail (Jones 1977; Barford 1988 and 1990; Lane & Morris 2001) and need not be repeated here. Nonetheless, this assemblage is comparable in terms of quantity (albeit at the top of the values) and variety of equipment to material recovered from several Fenland sites (e.g. Billingthorpe and Tetney, Lincolnshire; Fenn Creek, Hullbridge basin, Essex; Cowbit Wash, Lincolnshire; Deeping St James, Lincolnshire) and Brean Down, Somerset (Harding 2000; Lane & Morris 2001).

Quernstones David Buckley and Hilary Major

Twelve quernstone fragments were recovered from the area of the South Rings (Fig. 3.21). Of these, nine require no further comment within the context of the enclosure, since they comprise rotary quern fragments that derive from the upper ditch levels and from a posthole. Details of these later stones are contained, with full details of all the quernstones from Mucking, within the site archive. The remaining three fragments, although not worthy of illustration, are of interest in that they are parts of saddle quern found within the lower fills of the inner enclosure ditch and can be associated with Late Bronze Age activity at the South Rings.

1) [1617] (Level 6, south butt of eastern entrance, inner ring) – Coarse sandstone (Greensand) saddle quern; <10% surviving; max Th. 5.6cm; smooth grinding surface.
2) [1637] (Level 9, north butt of eastern entrance, inner ring) – Sandstone (sarsen) saddle quern; <15% surviving; max Th. 5.0cm; grinding surface originally pecked and worn smooth.
3) [1637]? (Level 9, north butt of eastern entrance, inner ring) - Calcareous sandstone/sandy limestone quern; <15% surviving; max Th. 4.8cm; rough grinding surface. A further fragment from the same context, but with no obvious sign of working, also recorded.

The form, use and general background to saddle querns was considered by Curwen in his important article tracing the evolution of the quern (1937). They first appear in Neolithic contexts, are a common component of Bronze Age assemblages and continued in use throughout the Iron Age, though were gradually superseded by rotary querns during that period. It has been argued that the Iron Age saddle querns showed a general consistency in size (Buckley 1979), two types being distinguished: small oval types and large heavy ones, both with deliberate working to the required form. Further, as these forms are standard it is now widely accepted that many saddle querns were produced at specific quarry sites and traded. In southern Britain, research has certainly confirmed this for saddle querns of Greensand, with evidence that stones from quarries at Lodsworth were being traded by the sixth century BC and possibly earlier (Peacock 1987, 67). They are generally associated with the milling of grain and it has been taken that the presence of saddle querns, with grain storage pits on many of the settlement areas, underlines the fact that the basis of the subsistence economy was corn growing (Cunliffe 1975). This stated, it should be borne in mind that a wide range of other food items could have been crushed and ground using saddle querns.

In addition to the pieces of saddle quern from Late Bronze Age contexts at the South Rings, a total of 58 definite and possible saddle quern fragments were identified from the site as a whole (full details in the archive; see Figs. 3.2 & 3.21) and which occurred in a range of stone types (Table 3.26).

Sarsen forms the largest group, these being worked out

Table 3.28. Rajkovača's animal bone totals and species frequency.

	Original Dataset				G. Done List			
	Inner Ring		Outer Ring		Inner Ring		Outer Ring	
Taxon	**NISP**	**%NISP**	**NISP**	**%NISP**	**NISP**	**%NISP**	**NISP**	**%NISP**
Ox	103	*48.6*	14	*82.3*	112	*53.1*	16	*80*
Sheep	51	*24.0*	2	*11.8*	51	*24.2*	3	*15*
Pig	43	*20.3*	.	.	37	*17.5*	.	.
Horse	5	*2.3*	.	.	5	*2.4*	1	*5*
Dog	2	*1.0*	.	.	2	*0.9*	.	.
Red deer	2	*1.0*	1	*5.9*	4	*1.9*	.	.
Rabbit	6	*2.8*	.	.	.	.	.	.
Subtotal ID to species	212	100	17	100	211	100	20	100
Cattle-sized	23	.	4	.	18	.	3	.
Sheep-sized	1	.	4	.	2	.	1	.
Mammal n.f.i.	55	.	15	.	.	.	.	.
Bird n.f.i.	1	.	.	.	.	.	.	.
TOTAL	292	.	40	.	231	.	24	.

Table 3.29. Identified charcoal-species frequency.

	Inner Ring	Outer Ring	Other	Total
Acer (Field Maple)	65		80	145 (7%)
Crataegus (Hawthorn)	10	31	90	131 (6.3%)
Corylus (Hazel)	205	50	22	277 (13.4%)
Fraxinus (Ash)	80		30	110 (5.3%)
Populus (Poplar)	20	111	30	161 (7.8%)
Prunus (Sloe)		10		10 (0.5%)
Quercus (Oak)	537	176	505	1218 (59%)
Ulex (Broom/Gorse)			5	5 (0.2%)
Other/Unidentified	2	1	3	6 (0.3%)
TOTAL	919	379	765	2063 (100%)

of boulders that usually retain areas of unworked surface on the underside. Most of the other saddle quernstone types, with the likely exception of the Greensand, could also have an origin as erratics. While the source for many of these could be local some may have been transported for some distance, either as rough boulders or ready prepared stones.

Although only 10 of the Mucking saddle querns came from pre-Roman contexts most, if not all, are of prehistoric date (Table 3.27). The larger number from Roman and Anglo-Saxon contexts are almost certainly disturbed from their original context. In some cases collection or re-use of the stone may have taken place for various purposes: for example, a number of pieces appeared to have been re-used as whetstones.

Collectively, the Mucking finds comprise some two-thirds of the total number of saddle querns found in Essex.[14] There are only three other sites of Bronze Age date, comprising a Greensand lower stone from a ploughed out barrow at East Tilbury dated to *c*. 1400BC (Bannister 1961) and fragments of Greensand and purple ferruginous sandstone saddle quern from late Bronze Age open settlement features at North Shoebury on the Lower Thames Estuary (Wymer & Brown 1995) and Heybridge on the Blackwater estuary (Brown & Adkins 1988).

The general use of Greensand from these Bronze Age sites is maintained during the Iron Age and, in this respect, Essex conforms to the pattern of widespread use of this rock type for saddle querns throughout southeastern England during these periods. A trade of saddle querns into south Essex is logical, since the area is lacking in suitable outcrops of hard rock and the various spreads of gravel deposit are an uncertain source for large pieces of suitable quernstone. Large pieces of hard sandstone or sarsen do occur across central and north Essex within the glacial deposits and these are the likely source areas for [1637]. The source of Greensand for [1617] has not been traced. The nearest hard rock sources are some 20km to the southeast of the River Thames in Kent and the sandstone from the Heybridge settlement was specifically identified as deriving from the Folkestone Beds (identified by C. Ingle in Brown & Adkins 1988, 247); however, recent research into the petrology of some Iron Age rotary querns from Essex has indicated a Lincolnshire source (C. Ingle pers. comm.). This clearly has important implications for the pattern of trade contacts during the Iron Age, but also suggests caution in seeking a source at the most immediate Greensand outcrop for Essex Bronze Age saddle querns.

Although fragmentary, the thickness of the saddle querns from the South Rings suggests that they derived from small oval forms of stone. There is no reason to doubt that these were used at the site for the grinding of corn; however, it is notable given the scale of excavation how few saddle querns were recovered. This could simply reflect a poor recovery level, especially as quern fragments are often small and abraded, or relate to collection and the re-use of the stone elsewhere during the life of the settlement given that stone was a scarce commodity in the area. This might, however, also indicate an economy in which grain did not play a significant part, or more specifically, point to the South Rings having a particular function where processing of grain was limited. In considering these factors it can be noted that only six certain quern fragments were recovered from the nearby North Ring (Bond 1988, 22) and that only one definite quern fragment was found at the Springfield Lyons Late Bronze Age enclosure in the Chelmer Valley (Major in Brown & Medlycott 2013, 90). The possibility that these enclosures had a particular function with limited activity involving the processing of grain is reinforced if comparison is made with the quite large numbers of saddle quern fragments recovered from extensively excavated Middle Bronze Age open settlements like Black Patch, East Sussex (Drewett 1982) and Thorny Down, Wiltshire (Ellison 1987).

Table 3.30. Total animal bone fragments identified, 193; excludes four horn cores and 99 bones and teeth either unidentifiable or only size-attributed (e.g. 'large mammal' or 'sheep-size', etc.).

	Fragments	
Species	Bone	Loose Teeth
Ox	56	35
Sheep	19	28
Pig	28	8
Horse	2	3
Dog	12	
Deer	2	
Total	119	74

Economic and Other Data

The enclosure's environmental preservation was generally held to be poor, with no waterlogged deposits or even shell recovered. Similarly, it is obvious that only a portion of its animal bone survived. While the latter certainly does not amount to a major assemblage, given the almost complete lack of any such material from comparable enclosures of the period within the region (e.g. the North Ring, Lofts Farm and Springfield Lyons; respectively, Bond 1988, Brown 1988b and Brown & Medlycott 2013), it has been thought worthwhile to present it in full and 'raw' (i.e. unrevised). That said, having located the original bone-identification lists, Vida Rajkovača has recalculated their totals and established species frequency below (*cf*. Done, below).

A summary of Morgan's charcoal identifications from the Rings follows and also included in this section are the results of Barford and Mainman's clay source investigations (dating from 1981, the latter manuscript text is unrevised). The reasons for presenting these studies are two-fold. Firstly, they reflect the Joneses' commitment to the day's fledging archaeological science and, particularly for the clay sources (included in this chapter because of its implications for briquetage-making), attest to the 'landscape-scale' in which Mucking's archaeology was addressed. Secondly, are the results themselves. Typically in both cases, for understandable reasons, their source-collection was fairly unsystematic and they fall somewhat short of current expectations of 'hard-data'. What was attempted, nevertheless, deserves notice and can only be applauded.[15]

Drawing on the 1982 catalogue of Graham Morgan's species identifications, as something of a trial of the data's potential, we have calculated the charcoal frequencies from the Rings (Table 3.29; see Fig. 3.22 for distribution). With oak being by far the most abundant (59%), followed by hazel at 13%, six other species were identified.

Maisie Taylor has kindly commented on the assemblage's representation:

There are as some discrepancies with the assemblage, such as the fact that poplar is indistinguishable from willow; equally, residuality is probably also confusing its register. Taken at face-value the assemblage makes me think of woodland-edge, or cleared woodland with a bit of regeneration rather than hedging. Other than the *Ulex*, which is somewhat 'scrubby', the rest could all represent under-storey trees. In short, it is the sort of assemblage you might get if a bit of light woodland was cleared and the brash burnt, or if scrub was beginning to encroach and needed cutting back.

As reported by C.A. Keepax of the Ancient Monuments Laboratory, identifications were also made of the charcoal submitted for the site's radiocarbon samples:

HAR- 2338 (165N × 345E; outer circuit, primary silts) - oak and willow
HAR-1630 (144N × 293E; inner circuit, secondary silts) - oak and alder
HAR-1708 (140N × 340E; outer circuit, primary silts) - 'twiggy oak' and *Populus* sp. from larger timbers.

Marijke van der Veen also identified grain impressions from two prehistoric pottery sherds associated with the Rings:

144N × 293E (inner circuit) - 1x *Gramineae* indet.
268N × 306E (?pit 14650) - 1x *Triticum* sp., spikelet fragment.

Animal Bone Geraldene Done

The bone from the South Rings is like all Mucking bone, scarce in quantity, poor in quality and offers minimal reliable information on the general animal husbandry. The state of the tissue remaining suggests that bone has been destroyed in the soil, and though selenodont tooth fragments found at a number of locations may once have been accompanied by jaws, the amount of mandible or any other bone lost is inestimable.

Horse, ox, sheep, pig, red deer and dog were identified (Table 3.30).

Few measurements were possible; the following are in mm (after von den Driesch 1976):

Ox — Horn core basal circumference 145
Humerus Bd 60, 67
Radius GL 259, BFp 75, SD 40, BFd 67
Metacarpal Bp 45
Tibia Bd 63
Metatarsal Bp 40, 40, 41

Sheep — Tibia Bd 20.5

Pig — A virtually complete pig's skull was found in the inner ring. Like much of the material, most of its measuring points were damaged, with the following salvaged:
Median frontal length, 128 (von den Driesch 9)
Greatest frontal breadth, 115 (von den Driesch 41)
Height of occipital region, 138 (von den Driesch 45)
Width of palate at M2 level, 47

Dog — Carnassial L 23.

Dental evidence was noted in terms of wear (Grant 1975) and eruption (Sisson & Grossman 1938). Fragments were not always identifiable to species and were sometimes recorded as 'large animal' (LA; i.e. horse/ox/deer) or 'small animal' (SA). As tooth scraps of indeterminate ruminant type were often the only sign of animal presence at a given location, though intrinsically uninformative, they were also recorded.

Burnt bone occurred at several inner ring locations. Fragments of human skull were recovered from the northern terminal of the outer circuit's southeastern entranceway.

Inner Ring

Box 1/baulk, Butt end[16]
Fragments:
Horse 2, ox 16, sheep 10, pig 6, red deer 2, ruminant teeth √, LA 5, SA 2
Burnt bone (ox, sheep, pig) in Level 5 at both locations
Size:
Ox radius + ulna GL 340, radius GL 259, Bp 75, Bd 67, SD 40.
Pig humerus Bd 33
Red deer metatarsal Bp 34
Age:
Sheep mandible *c.* 12 months
Butchery:
Chops on LA femoral shaft.

Box 2
Fragments:
Horse 1, ox 10, sheep 6, pig 7, ruminant teeth √
Size:
Ox tibia Bd 63
Sheep horn core GC *c.* 25
Pig M3 L36
Age:
Pig mandible *c.* 18 months
Pig mandible > 18 months.

Box 3
Fragments:
Ox 3.

Box 5
Fragments:
Ox 3, Pig 1, LA 4+
Some burnt fragments – no level recorded.

Box 6
Fragments:
Ox 6, sheep 1, pig 4
Burnt bone in Level 2
Size:
Ox humerus BT 73, Bd 84
Sheep tibia Bd 21
Age:
Ox adult mandible
Butchery:
Ox distal humerus chopped and split.
(There is also a more or less complete skull and mandible of a young adult domestic pig, also most of two scapulae; however, the box in which it was stored has a list of co-ordinates – 125N × 280E, 120N × 370E, 126N × 260E, 126N × 270E, 115N × 245E – i.e. Boxes 3, 5 or 6.).

Box 7
Fragments:
Horse 1, ox 3
Burnt bone in 'late refill'.

Area 8/ 'rough digging'
Fragments:
Ox 4, sheep 3, pig 2, ruminant teeth √, LA 3

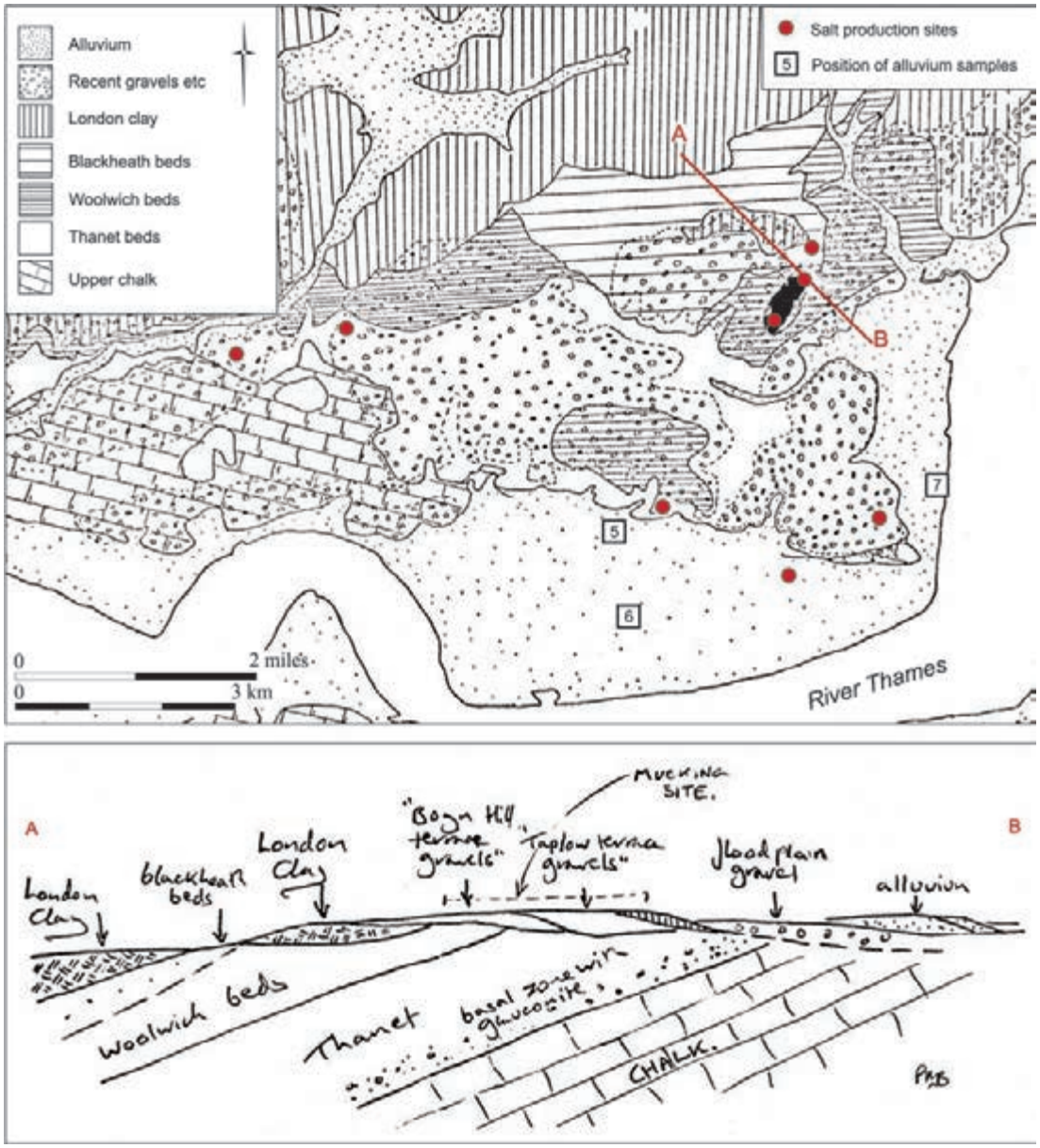


Figure 3.35. Map showing main geological beds with site-area blackened and with clay source-samples indicated; below, geological sketch section on A–B Transect across north end of site.

Burnt bone in 125N × 203E, Level 2
Age:
Pig M3 U.

Box 9
Fragments:
Ox 1, LA1.

Box 13, S. Butt end
Ruminant tooth scraps, burnt in Levels 1A and 3.

Box 14
Ox molar fragments.

Box 15/baulk
Fragments:
Ox 2.

Box 16/baulk
Fragments:
Ox 4, pig 2, ruminant teeth √
Age:
Pig M3 a.

Box 17
Burnt bone in Levels 1 and 3.

Box 18
Burnt bone in Level 3.

Box 20
? Horse molar fragment.

Box 21
Fragments:
Ox 4.

Box 22
Fragments:
Ox 7, sheep 4, pig 1, LA 3

Age:
Pig M3 ½.

Box 23
Fragments:
Ox 6, sheep 1, ruminant teeth √.

Box 24
Fragments:
Sheep 3, pig 1, ruminant teeth √, LA2
Age:
Pig M3 U.

Box 27
Fragments:
Ox 2, sheep 1.

Box 28/baulk
Fragments:
Ox 1, pig 1
Size:
Ox metatarsal Bp 41.
Age:
Pig adult mandible.

Box 29
Fragments:
Ox 8, LA 1.

Box 30
Fragments:
Ox 7, sheep 2
Size:
Ox metatarsal Bp 40.

Box 31
Fragments:
Ox 3, sheep 5, pig 1, ?red deer 1, dog 1
Size:
Red deer metatarsal 38
Age:
Pig adult maxilla.

Box 32, E. Butt
Fragments:
Ox 21, sheep 15, pig 11, ?red deer 1, dog 1, LA 1
Size:
Ox humerus BT 77, BT 60
Metacarpal Bp 45, SD 20
Bp 53
Age:
Ox, well worn M3 tending to form a posterior 'hook' – possibly opposing tooth lost
Sheep immature distal radius
Pig immature proximal tibia.

Outer Ring

Box 1
Fragments:
Ox 2, LA 1.

Box 3, E. Butt
Fragments:
Ox 2
Human skull fragments in Level 7.

Box 4, W. Butt
Ruminant tooth scraps.

Box 5
Fragments:
Ox 2, ruminant teeth √, SA several
Burnt bone in Level 2.

Box 8, 'rough digging'
LA 1.

Box 10
Ox molar fragments.

Box 11
Fragments:
Ox 1, sheep 1, LA 1.

Box 12
Fragments:
Ox 6
Burnt fragments in Level 2.

Box 13
Fragments:
Ox 1, sheep 2.

Box 19 (100N × 165E).
Fragments:
Horse 1, ruminant teeth √.

Fired Clay Sources Paul Barford, with Ailsa Mainman

The statement in the 1977 *Antiquaries Journal* interim 'salt pit' study, "There seems to be two sources of clay used at Mucking, one apparently from the brickearths which lie on the slopes of the gravel terrace, the other possibly a river alluvium" (Jones 1977, note 16), probably simplifies a more complicated situation. In view of the evidence elsewhere for the transport and use of suitable clays, and the fact that there are other clay sources close to the site, it would be as well not to ignore them.

The site lies at the boundary of four sheets of the Geological Survey map. It lies mainly on Sheet 271; however, the quality of data on these sheets varies, Sheet 258 is more complete (in particular, regarding the presence of 'Head'; see Clark 1993, fig. 3). Most deposits are covered with a varying thickness of 'drift' deposits, mostly glacial and alluvial gravels, but are exposed where these have eroded (or been quarried away). Unfortunately, the Geological Survey have not marked on the position of the 'Brickearth' on the valley slope. This can, however, be plotted from aerial photos (see Figs. 1.15 & 2.44).

The Essex brickearths are a variable series of sandy or clayey silts (Fig. 3.35). Some of these are deposited by slow flowing water or in lakes. Some appear to be derived from wind-blown deposits, accumulating in hollows or interfluves and on gentle east-facing slopes under former periglacial conditions. Much of this material has been reworked by water, soliflucted downhill or bio-/cryo-turbated *in situ* and may in places include residual material derived from weathering of boulder clay (see Jermyn 1978).

The nearest outcrop of chalky boulder clay is 10km away from the site. The London clay outcrops 0.5km north of the site (probably the Basal beds). The Woolwich Beds have clayey areas, but near the site they have a sandy facies and are very thin.

The alluvium on the foreshore is clayey in places and in the East Tilbury area contains beds of comminuted shell, possibly a source of clay for the shell-tempered later Iron Age pottery. As outlined below, Mainman's thin-sections suggest that the alluvium in the West Tilbury marshes

are characterised by fine flint inclusions. This, however, would be recently reclaimed land and the Thames would have had a different deposition before its embanking.

Analysis of Clays

1) *MUJ I Brickearth from North Ring* – Principal feature of the clay is a groundmass of fairly dense and well-sorted quartzsand of up to 0.1mm – occasional flint particles of the same size occur – other inclusions are opaque – mica (muscovite) occurs but quite rarely.
2) *MUJ II Brickearth from 'near oak tree'* – Texture is finer and more compact – quartzsand and opaque minerals predominate again, but the majority of the quartzsand particles are small (i.e. 0.05–0.15mm) – occasionally there are some larger grains (i.e. up to 0.3mm) – muscovite is a little more common in this sample than in Sample (1).
3) *MUJ III Brickearth from North Ring* – Less of the dense background of small quartzsand particles – size range from quartzsand particles is generally larger: 0.25–0.5mm – opaque minerals and mica (muscovite) again present. No flint obvious.
4) *MUJ Brickearth from North Enclosure Ditch* – Same range of inclusions but there are significant textural differences (i.e. size range from 0.1–0.5mm – angular and rounded – larger size predominates – occasional flint particles of very large size: 1.8mm).
5) *Alluvium I collected at the inland edge of the alluvial plain* (West Tilbury) – Quartzsand occurs in all sizes and as both rounded and sub-rounded inclusions – flint occurs quite commonly, again in many different sizes – opaque minerals of up to 2mm in size occur quite commonly.
6) *Alluvium II collected from coastal edge of the alluvial plain* (West Tilbury) – Distinctive feature of both Samples 5 and 6 seems to be the presence of flint, often in very large particles – this sample 1.5mm – one grain of microcline feldspar and the occasional grain of quartzite – large opaque minerals and full size range of quartzsand inclusions.
7) *Alluvium III collected Tilbury* (*c.* TQ 695783; East Tilbury) – Very 'pure' in appearance – groundmass is exclusively very small quartzes and particles – other inclusions are shell fragments and oxides.

By way of comparison, a further sample collected from Feddersen Wierde was also analysed. This consisted almost exclusively of inclusions of quartzsand up to 0.1mm in size; only other notable feature are clay pellets within the matrix and which seem purer with fewer quartzes and inclusions.[17]

Samples 1–4 are indicative of variability of the local brickearth petrology, but it would appear that Sample 1 was the most likely source for the site's salt production equipment.

Due to changing conditions of water flow in the Thames, as the land reclined on either side, the differences in the inland and coastal-edge alluvium samples should be noted. Sample 7, taken from East Tilbury, is significantly different and could possibly be a source of the site's later Iron Age shell-tempered pottery.

Appreciation: Margaret Jones – *A Legacy of Formidable Field Women* Anwen Cooper and Julia Roberts

At a time when the final piece of the Mucking publication jigsaw is being put in place it is apt to consider Margaret Jones herself and her place in the history of British archaeology. In doing so it is worth noting that this is, in some respects, a difficult task. Although several broader historical accounts cover the relevant period (e.g. Hudson 1981, Lucas 2001a and Wainwright 2000), a detailed history of archaeology (and in particular the very important domain of fieldwork) during the 1960s and 1970s in Britain has yet to be written. Moreover, the relative invisibility of women in the history of archaeology, both at a broad level and during this period in particular has been widely noted (e.g. Diaz-Andreau & Stig Sørensen 1998, Lucy & Hill 1993 and Pope 2011). Consequently our research into this topic required not only a trawl through the available literature about Margaret Jones, Mucking itself and the excavation scene more broadly at this time (e.g. Barford 2011, Clarke 1993, Elsdon 1997, Rahtz 1974 and Webb 2001), but also discussions with other women who were familiar with Margaret's work and were, themselves, directing major excavations at this time. We are indebted to the opinions provided on this theme by Rosemary Cramp (RC), Frances Lynch (FL) and Ann Woodward (AW).

Almost all personal accounts of Margaret Jones refer to her formidable character (e.g. Barford 2011, Carney 2002, Elsdon 2001 and Pitts 2001). Indeed, it has even been suggested that 'everyone was afraid of her' (G. Wainwright pers. comm. to C. Evans). As such, she follows in the footsteps of many other women archaeologists throughout the discipline's history. Consequently it seems vital to begin by considering Margaret in this context.

When the Society of Antiquaries of London began meeting regularly in the early eighteenth century, Elizabeth Elstob, sister of the founder member Reverend William Elstob, was an interested observer (Wallas 1929). Her works, *An English Saxon Homily on the Birthday of St Gregory* (1709) and *The Rudiments of Grammar for the English Saxon Tongue* (1715), were well-respected by contemporary scholars (Clark 2005).

Although women were never actively encouraged by the new national archaeological societies, it was not until the early twentieth century that the Society of Antiquaries banned their presence from meetings (Evans 1956) and throughout the eighteenth and nineteenth centuries *Archaeologia*, *Archaeologia Scotia* and the *Proceedings of the Society of Antiquaries of Scotland* regularly published reports by women antiquarians (Riddell 1779, Moira 1785, Scott 1864 and Armitage 1900). The mid nineteenth century, with the increase in archaeological discoveries and reduction of publishing costs, brought an upsurge in the number of county archaeological societies. Again, women were active members, writing for the journals, attending meetings, and serving on the committees (Roberts 1995 and 2006).

Moving into the first half of the twentieth century this 'splendid regiment of women' (Daniel 1969, 2) – Margaret Murray (University College London), Dorothy Garrod (Cambridge) and Kathleen Kenyon (Institute of Archaeology, London) – become more visible historically. Outside academia there were women museum curators (e.g. Clare Fell) and increasing numbers of women running major excavations, both in Britain – Kitty Richardson, Molly Cotton, Elsie Clifford, Maud Cunnington – and abroad – Gertrude Bell, Gertrude Caton Thompson, *etc*. There can be little doubt that women were both present in archaeology and made significant disciplinary contributions at this time (see also Champion 1998). The early twentieth century was also a period when husband and wife archaeological partnerships flourished: the Hawkeses, the Petries, the Piggotts, the Foxes, and most famously, the Wheelers. However, it is perhaps the independent income of the vast majority of women archaeologists in the eighteenth, nineteenth and early twentieth centuries (Fox 2000 and Roberts 2006) that links them most closely, and distinguishes them from many of the generation that followed.

At one level, within academia, recent research has suggested that women were largely absent in archaeology in Britain during the 1950s to 1970s (Pope 2011). By contrast within the arenas of local society archaeology and fieldwork, our own study indicates that during these decades, a large number of women both operated within British archaeology and made a significant disciplinary input. As Fowler (1972) has noted the 1950s and 60s saw a marked increase in local archaeological societies. While women may not have dominated these groups numerically, in virtually every local society there were prominent women members inspiring, facilitating and engaging in important fieldwork. This is clearly demonstrated in Essex itself where Margaret Jones was joined by Ida McMaster and Kay de Brisay as mainstays of the Colchester Archaeological Group (Fawn *et al*. 1990). All three of the women with whom we talked could list numerous female colleagues who directed major excavations. As well as Margaret Jones, this list included Evelyn Baker (La Grava, Bedfordshire), Paddy Christie (Chysauster, Cornwall), Christina Colyer (Lincoln), Barbara Harbottle (Greyfriars, Newcastle), Carolyn Heighway (Gloucester), Audrey Henshall (Clava Cairns, Aberdeenshire), Anna Ritchie (Buckquoy, Orkney), Margaret Rule (the Mary Rose), Isobel Smith (Windmill Hill) and Faith Vatcher (prehistoric sites across Wessex). Frances Lynch suggested that on many excavations at this time, a fairly balanced gender makeup existed at all levels. She also stressed how the situation for women archaeologists compared very favourably with that in other disciplines, such as architecture, where her sister had 'found it advantageous to sign her drawings only with her initials, never her name'.

Mainstream histories of archaeology, however, do not share this gender balance. Daniel (1967, 1975 and 1981), Trigger (2007) and Bahn (1996) focus predominantly on men, and of the 58 archaeologists in Murray's edited encyclopaedia (1999) only Dorothy Garrod and Kathleen Kenyon are discussed. There is an undoubted gender bias within existing histories of archaeology, but we would suggest it is not just women archaeologists who have been overlooked. With notable exceptions (for instance Maiden Castle and Sir Mortimer Wheeler) field archaeology in general is largely omitted from these histories, a fact which leads to questions of why certain archaeologists are remembered and others forgotten. A discussion of visibility, memory and how histories of archaeology have been written would obviously be too wide-ranging to include here; however, Margaret Jones does illustrate how our discipline's histories of the twentieth century focus almost entirely on academic archaeologists. Would Rahtz or Biddle be remembered if they had remained as fieldworkers? Leslie Grinsell's contribution to fieldwork methodology has largely been forgotten yet his contemporary influence was immense (Grinsell *et al*. 1966, 63 but see also Fowler 1972 and Hutton 2009). Is it that in order to be remembered archaeologists have to be academics – to have students or acolytes to keep their memory alive and to be prolific writers? In relation to this point it is noticeable that the large quantity of women subscribing to the national and local archaeological journals in the early twentieth century (many of whom also made significant fieldwork contributions) was completely disproportionate to the number of women publishing articles (Roberts 1995). This inconsistency is unlikely to have changed in the later twentieth century and it is certainly possible that the names of the individuals concerned are remembered only at a local level. Is it that academics, unlike other fieldworkers, have the time and resources to choose their excavations and write their reports? Or is it simply that the histories of archaeology tend to be written by academics who only value their own kind? Whatever the reason, it leaves Margaret Jones in danger of being doubly forgotten – as a woman and as a fieldworker.

Overall, it seems very likely that the broad rise

in the number of women archaeologists during the 1960s and 1970s relates, in part, to the burgeoning of archaeology as a university discipline from the early 1960s onwards (Hudson 1981, 130–1). This ascendancy was almost certainly also connected to a widespread realisation at this time of the pace at which archaeology was being eradicated by post-war construction. The resulting fervour which developed amongst women, men, students and a spectrum of others to counter this trend ultimately led to the emergence of the RESCUE movement in the early 1970s (Rahtz 1974). For those involved, including Margaret, it seems likely that salvaging Britain's heritage was of much greater importance than the specific identities (gender or otherwise) of key participants (see also Cooper & Yarrow 2012).

As Rahtz illustrates very well (1974 and 2001a), being a fieldworker of any sort in British archaeology during the 1960s and 1970s required a certain strength of character. This was perhaps particularly the case for women. Ann Woodward described to us the existence of 'a strong anti-female atmosphere' at the time; Frances Lynch was informed early in her career that 'some of the older professional labourers did not like the idea of being told what to do by a woman', and Pope (2011) outlines many other barriers that stood in the way of women achieving their career potential. Despite this, none of the other women field directors with whom we spoke had identified strongly (or indeed at all) with the rise of feminism during this era. There is no evidence to suggest that Margaret did either. In fact, there seems no good reason to assume that a greater sense of solidarity existed amongst women who operated in archaeology during the 1960s and 1970s than it did amongst archaeologists more generally. Overall, according to those who we talked to, it appears that the redoubtable spirit of later twentieth century women archaeologists was expressed variously – through their outstanding interpretative talents, their admirable writing abilities, their brusque or at least firm management styles, their cunning career tactics, their capacity to combine both powerful organisational and pastoral skills, and their unerring resolve to be successful in their particular field.

In considering Margaret Jones in the context of other formidable women in archaeology's history, it is important to note that she was viewed in many ways as being unique (RC). Like other key women archaeologists, particularly of the early twentieth century, Margaret was very much seen as working in partnership with her husband, Tom. However, in contrast to the gender hierarchy operating in most such affiliations (Sørensen 1998, 50), it was Tom, rather than Margaret who tended to play the supporting role. In this respect, Margaret and Tom Jones seem most similar to Maud and Ben Cunnington. In that partnership it was Maud Cunnington who was quickly established as the leader, who decided where and when they should dig, and who wrote the reports (Cunnington 1935 and Roberts 2002). Akin to virtually all of her predecessors and several of her contemporaries, Margaret was not formally trained in archaeology. Although Margaret was admired intellectually (Barford 2011, 216) and certainly did engage with academia – by presenting her work in university seminars (RC) and training a whole generation of student archaeologists in fieldwork skills (Elsdon 2001) – there is little evidence to suggest that she actually aspired to being an academic. Rather, Margaret gained respect and ultimately a position of significant responsibility in archaeology through her outstanding organisational skills (AW), her recording abilities (AW), her exceptional vision and determination methodologically (RC), as well as her forceful, even formidable, yet ultimately very caring personality (e.g. Barford 2011, 216).

In many ways then, Margaret, like Mucking itself, can be viewed as being caught in between historical eras (Barford 2011, 228). She continued a legacy laid down by earlier twentieth century women archaeologists: operating in an archaeological partnership, advancing significantly methodological and interpretative approaches, and working quietly and determinedly while also wielding her indomitable character. At the same time, she belonged to an emerging generation of professional women archaeologists who had to sustain themselves financially through their work and who, by engaging forcefully in the rescue scene, played major roles in changing the shape of the entire discipline in Britain.

Finally, it is very important to consider how Margaret Jones would herself have liked her disciplinary contribution to be viewed historically. For instance, Margaret might wish to have been remembered predominantly in relation to the extraordinariness of Mucking as a site itself. In her contribution to the Mucking *Site Atlas* (Clark 1993), she noted that many of those who had been vital to the creation of the site had already been 'immortalised as a posthole setting, a length of ditch, a roundhouse, or a pottery kiln' (Jones 1993, 9). It is certainly possible that for Margaret, the site and its excavators (including herself) were in many ways indivisible (cf. Yarrow 2006). Alternatively, she might wish to have been viewed – as the other women field directors from this period who we talked to did – in relation to other archaeologists of all kinds – both fieldworkers and academics – who

Figure 3.36. (opposite) Margaret Jones (1916–2001): Archive photographs showing her characteristically working alone before the quarry drag-line (bottom) and atop a photographic tripod-tower commanding a cleaning trowel-line (above); inset top, recording finds from a sieved sample.

RUSTON BUCYRUS

made significant disciplinary contributions during the late twentieth century. For instance, Rahtz presents Margaret as one of a small but ultimately key group of 'consultant' fieldworkers (including himself) who established themselves in the late 1950s (2001a, 68).

In summary, Margaret Jones was a pioneer professional archaeologist, who along with her husband, Tom, took on a remarkable fieldwork project, the scale of which is extraordinary even in the context of contemporary British archaeology. Her outstanding achievement in terms of seeing through the excavation of Mucking cannot be stressed strongly enough. Her vision of landscape excavation was clearly admired intellectually at the time (RC) and has undoubtedly had a profound influence on subsequent fieldwork approaches. With respect to her disciplinary contribution – both interpretative and methodological – therefore, she must be regarded as a key (female) figure in twentieth century British archaeology. At another level, however, Margaret (and Tom) were Mucking: these entities arguably became entangled to such an extent that, in history, they might best be seen as no more or no less than each other.

Discussion

For what should be obvious reasons, this chapter's discussion will focus upon the development and use of the South Rings, its potential interrelationship with its counterpart to the north (Bond 1988) and, also, Eastern England's ringworks generally. Although the paucity of systematic study of Mucking's Late Bronze Age assemblage as a whole means that we are limited in our attempts to model the site's settlement patterns, we can at least rehearse the questions that should be asked.

Baseline Matters – Dating and Economy

In his study of the site's ceramics Brudenell has already presented its radiocarbon dates and fully reviewed its chronology (see Table 3.14). Taking these assays at face value, there is a temptation to see the South Rings as somewhat earlier than the North Ring; however, the inexactitude and broad calibration range of their dates must be borne in mind. Indeed, based on the pottery from the two sites, there is now even a likelihood that the South Rings was actually somewhat later, as its primary assemblages are 'late' PDR plainwares and lack the earlier forms of that tradition such as are found at Springfield Lyons and the North Ring (the latter's C-14 dates being, in addition, only from its upper Phase 5 ditch deposits and not its primary fills; Bond 1988, 55). Based on this, Brudenell concludes that deposition within the South Rings proper cannot have commenced before the ninth century BC.

At the other end of its dating spectrum, the material in the South Rings' middle/upper circuits consisted of decorated PDR wares, which are broadly assigned to the Late Bronze Age/earliest Iron Age. This is now dated to *c.* 800 BC, but may well have spanned the eighth century and could even be later. As Brudenell notes, however, no Darmsden-Linton style wares were present and, therefore, the ringwork's occupation must have ceased prior to the Early Iron Age proper. Based on this, it most likely that the enclosure's usage spanned the period from *c.* 900–700/650 BC.

As an earthwork the South Rings evidently had a lingering landscape influence. The establishment of the Iron Age roundhouses across the line of its inner northwestern circuit could probably have only occurred with the localised levelling up of its perimeter, as the recovery of later, rotary quernstones and even Roman coins within the circuits' upper profile indicates a degree of subsequent earthwork survival. Otherwise, the manner in which the ditch-lines of the RBI Enclosure cut the Rings' interior suggest that any earthwork features had largely disappeared by the later Iron Age. Yet, at the same time, those Roman boundaries that ran parallel to the outer circuit's southeastern 'front', as well as the placing of the *Grubenhäuser* around the entranceway there, could attest to its localised survival until, at least, the mid/later first millennium AD.

The high acid values of the local soils clearly impeded the site's bone survival. This was also true of the North Ring, from where only a few cattle and sheep/goat bones and teeth were recovered (Bond 1988, 19). Obviously, little can be said of the some 200 animal bone fragments found at the South Rings; however, these now take on greater significance in the knowledge that no animal bone assemblages survived at any of the other fully dug Essex ringwork sites: Springfield Lyons and South Hornchurch (Brown & Medlycott 2013 and Guttmann & Last 2000; nor does any bone seem to have been recovered from Great Baddow, though excavation there was very limited: Brown & Lavender 1994). It is, therefore, noteworthy that ox/cattle dominated both the South Rings' bone and teeth counts (both 47%; from Table

3.30). Occurring respectively at 23.5% and 16%, while its pig values may seem high when compared to the sheep levels, given its poor preservation the loose teeth values are surely more representative: 11% and 38% respectively. The occurrence of pyramidal loomweights (characteristic of this period) and, also, spindlewhorls, would also attest to the role of sheep rearing.

Again, as at the North Ring, due to preservation (and surely, non-intensive sampling regimes), there is no evidence of plant remains from the two sites; at both, the role of cereals can only really be inferred from the occurrence of saddle querns and 'four-poster' granaries.

Bond explicitly interpreted the role of the North Ring's within a pastoral-transhumance model (1988, 52):

> The pastoral element at the North Rings appears predominant. If this was the case, it is possible that in part, an element of transhumance might be involved. Such a strategy could have utilised the clay soils and marshes of the Thames estuary during the summer months, in a similar though less formal way, as practised at Fengate with regard to the Fen edge (Pryor 1980[a]).

In much the same manner as Margaret's allusion to Grieve's 1959 paper, 'The Essex Marshland and its Sheep' in the passage introducing this chapter, elsewhere in his North Ring report it is clear that Bond considered this a sheep-based transhumance (1988, 19). Yet, as has been demonstrated elsewhere (Evans 1987), all this was very much the predominant interpretive paradigm of the time (e.g. Bradley 1978). Harking back to the appeal of 'movement-led' socio-economic models generally, in this case the direct influence of Pryor's Fengate interpretations are also apparent; this is where, after all, Bond had been an area-supervisor in the years preceding his Mucking/Central Unit enlistment (see Evans *et al*. 2009, fig. 6.10; see also Pryor 1996).

Excavated some years later, in 1985–6, but published in the same year as the North Ring, the comparably 'formally' arranged – though with a sub-square double-ditch layout – of the contemporary enclosure at Lofts Farm, north of Essex's Blackwater estuary (Brown 1988b), offered a more convincing pastoralist basis. While also lacking animal bone, it had a good carbonised plant remains record. Based on restricted crop-growth within the area today, and the fact that there was no evidence of primary-phase crop cleaning amongst its arable plant remains, it was thought that its cereals may have been brought into the site (*ibid*., 294–5). However well argued, the compelling logic and ready 'allure' of such pastoral arguments should nevertheless not be lost sight of – with this chapter's earlier written quern report even reflecting this bias – as opposed to the recognition of a stock-rearing emphasis within mixed farm regimes (and in the absence of pollen evidence; see Evans *et al*. 2009, 243–50 for review and also Murphy 2013 concerning the *agrarian economies* of the Springfield and Lofts Farm enclosures). Having said that, recognising the role of Lofts Farm-type enclosures for the period's metalwork exchange, the occurrence of feasting was also emphasised (*ibid*., 296) and provides a link with the interpretation of Mucking's South Rings.

It now needs to be considered how the economic practices would have been supported by broader land-use patterns. Obviously, as we are uncertain of the scale of the terrace's Late Bronze Age settlement, this is something that cannot be modelled in any detail. It nevertheless raises issues that require, at least, rehearsal and, accordingly, the question of contemporary fieldsystems will first be addressed, before tackling the problem of any off-terrace utilisation.

While to some extent 'boxed in' by the earlier axes of the Middle Bronze Age fieldsystem, Mucking's Late Bronze Age landscape appears to have been without any such allotment (at least one that was feature-based). This contrasts with South Hornchurch, for example, where the line of a major fieldsystem-related droveway interrupted in relationship to its ringwork (Guttmann & Last 2000). It is in this context that the possibility that Mucking's terrace may have been hedged becomes relevant, and where Morgan's truly mammoth analysis of the site's charcoal can be drawn on. Given the non-systematic collection of its samples and the risk of feature-intrusion/contamination, this evidence can never be considered absolute, but only an intriguing possibility (see, though, Taylor above and Astor 1979, plus also the exchange of letters between Pryor and Margaret presented in Evans *et al*. 2009, 12–14 concerning long-term hedge-driven landscape continuities).

Finally, as to patterns of the enclosure's off-site economic activities, the critique presented above of the Rings' pastoralist/transhumant interpretations does not deny that elements of this may have occurred, but simply questions the *de facto* application of such ready explanations. Based on the recovery of briquetage from the enclosure, there can be no doubt that the South Rings had direct connections with the eastward Thames-side marshes (as did the North Ring). As remarked upon by Margaret in the 1977 passage that features in this chapter's introductory section, it seems likely that salt-making equipment was actually made on Mucking's terrace for transportation down to the marsh's salterns. This would find possible confirmation in the results of Barford and Mainman's clay sources survey, as well as William's thin-sectioning programme (1980). We cannot know whether their manufacture was a matter of local trade or actually entailed the seasonal displacement of portions of the resident population of the South and North Ring. If the latter, this may have

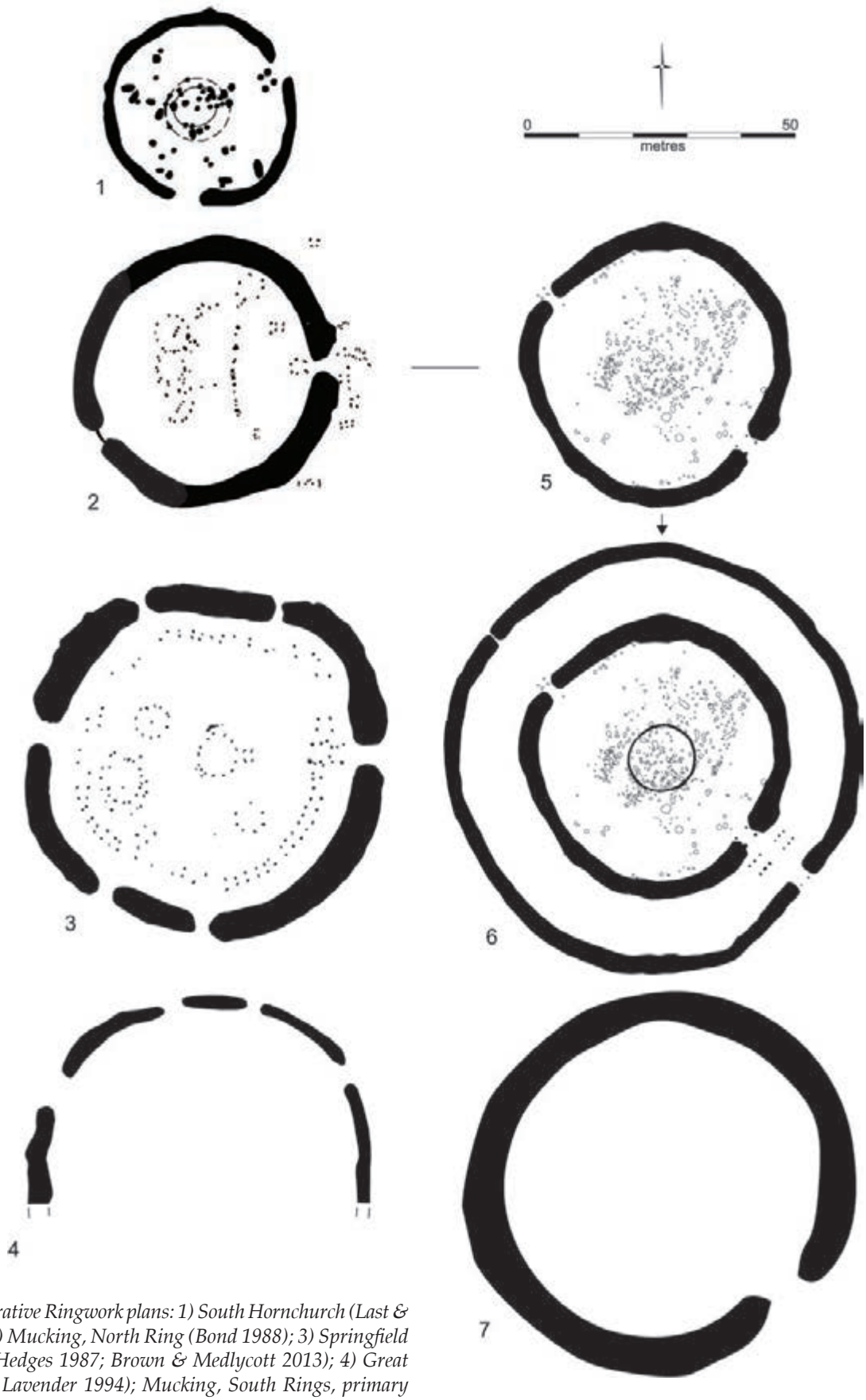


Figure 3.37. Comparative Ringwork plans: 1) South Hornchurch (Last & Guttmann 2000); 2) Mucking, North Ring (Bond 1988); 3) Springfield Lyons (Buckley & Hedges 1987; Brown & Medlycott 2013); 4) Great Baddow (Brown & Lavender 1994); Mucking, South Rings, primary inner circuit-only phase; 7) Mucking, South Rings, final form; 8) Mill Hill Deal, Kent (after Allen et al. *2008, fig. 24).*

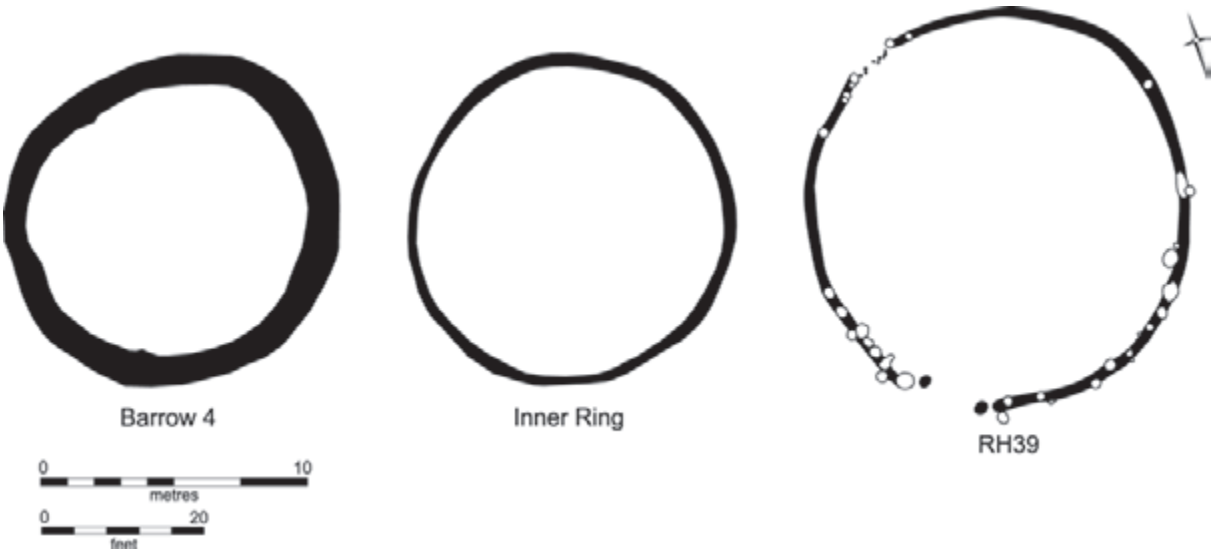


Figure 3.38. Circular Ambiguities – Houses and Monuments.

also been accompanied by off-terrace shepherding and/or cattle pasturage, and this could have occurred regardless of whether it directly related to salt production or not. The crucial point is that none of these factors need have made the Rings any manner of specialist pastoral/salt production settlement, but they are likely to have been facets of their essentially *mixed farming regimes*. Having said that, what is important are the relative frequencies of salt vessels within both the 'open' northern settlement swathe and the South Rings itself. Even if salt was being fire-dried there, at the former their representation was low, with the vast majority of the vessels of this type coming from the vicinity of the South Rings (98%; 1272 fragments); such containers were also a feature of the North Ring's assemblage (Bond 1988, 39–41, 50–1). If, as seems likely, these were intended for the transportation of salt, this suggests that *the two ringworks had a role as consumer sites and, probably, local redistribution centres*.

Now knowing how widespread evidence of Bronze Age salt production is within the region (see Fig. 6.3 and e.g. Champion 2007c, 110–11 and Kinory 2012, 49–51, figs. 39 & 42) and that it has also been shown to have occurred in Mucking's 'open' Late Bronze Age settlement at the north end of the site, it is not so much this that distinguishes the Rings and their trade networks, but *metalworking*. This seems to be true of Essex's ringworks generally. It was common to both Springfield Lyons and South Hornchurch (Brown & Medlycott 2013; Guttmann & Last 2000, 344), where there was no substantive evidence of salt production (e.g. only a single clay pedestal from the latter), yet there was evidence of bronze-casting and, particularly, sword manufacture. Although clearly involved in a wide range of socio-economic practices – and salt redistribution may well have provided the basis of the Rings' immediate local landscape status – it would have to be held that *high quality metalworking sat at the heart of the ringwork 'phenomenon' generally*.

Layout, Deposition and Status

Even though most known ringworks in the Southeast lack the dual circuits seen at the South Rings, many are still relatively simple and concentric in their layout, being circular enclosures with roundhouses at their centres. Amongst the excavated examples, this would be true of Hornchurch, Springfield Lyons and, of course, the South Rings (Fig. 3.37). In the case of Springfield Lyons, three other roundhouses also lay within its interior, with two side-by-side immediately west of its central buildings. This 'back' array of roundhouses is vaguely comparable to the North Ring's screened 'rear-space' line of three buildings (of course, due to the loss of small features, there is no way of knowing whether other buildings stood west of Roundhouse 5 at the South Rings).

Concentric spatial arrangements inherently have only two key points or zones: their centres and their bounded peripheries. In this regard (the North Ring's timber screen aside), it is surely relevant that none of the ringwork interiors appear sub-divided by any form of ditching (e.g. animal pens, *etc.*). Indeed, with their central roundhouses, their spatial organisation appears remarkably pristine. Of course, this would have been elaborated/compromised by house rebuildings and the addition of ancillary structures; nevertheless, these were essentially very 'simple' arrangements. In fact, they almost seem to proclaim that *the house* – and presumably its central hearth – lay at the core of everything.

As has been alluded to, given its complete and near-circular gully, doubt had been cast on whether Roundhouse 5's ditch actually defined a 'standard' building, as opposed to some manner of shrine or small ring-ditch variant. This might perhaps have been in commemoration of the (un-ditched) post-built houses that would have preceded it or, alternatively, mimicking the by then denuded form of adjacent barrows.[18] In the end, however, there seems to be no other convincing alternative explanation. While it would appear substantially larger than Springfield's central building, the key point is that the latter was defined by an internal post-ring beyond which that house's wall-line would have probably lain. In contrast, the Rings' Roundhouse 5 gully would, if in anyway structural, have been an eavesdrip gully, with any wall-line lying within. Perhaps marked by the 9.85m-diameter of the locally concentric, interior 'post arc', the other that partially encircled its perimeter would, in fact, have been larger: 12.45m in diameter (Fig. 3.19). Though this might seem large, it would be comparable to Hornchurch's central building (11–12m) and, indeed, fits well within the 8–13.5m diameter range of the period's buildings (Sharples 2010, 192–5). It is not, therefore, the size of Roundhouse 5 that distinguishes it, but its uninterrupted gully, which seems 'special' as it effectively forms another 'circle' at the core of the South Rings' concentric plan. Conversely, the presence of a doorway must also have been a crucial factor determining the eventual building status of Roundhouse 39, which during the MPX-phase was thought possibly to be a barrow (see Chap. 2 and Fig. 3.38). Lying 125m northwest of the Rings, at 14.5m in diameter this wall-trench defined Early Iron Age roundhouse had a south-facing entrance. The suspicion that it may have been a monument also surely related to the occurrence of three cremations within its interior. These were subsequently assigned a later date, but as is further explored in the next chapter, this structure nonetheless still seems 'special' and to suspect that it may have been a barrow was not at all unreasonable (see Bradley 2012 and 2013 concerning the ambiguous interconnections between houses and monuments).

With their inner-circuit areas varying from 784sqm (Hornchurch) to the 1269 and 1444sqm of the North and South Rings respectively, it is crucial to realise that the bounded 'core-spaces' of the smaller ringworks would be comparable to that of, for example, later ditched Iron Age household compounds, whether of sub-square or quasi-circular plan (*c.* 1000–3000sqm; see Evans 2003, fig. 139); in other words, a standard 'farmstead-size'. This, again, has implications for any notion that the ringworks had some specialist pastoral function. At least for those of the scale of Hornchurch and Mucking, they would have had limited potential for the penning of stock. While the interior of Springfield Lyons would have had approximately a third more holding capacity, it still would not have been great.

If leaving aside the matter of the South Rings' outer circuit, it and the North Ring essentially 'match' each other; the only other significant differences are the latter's eastern orientation (as opposed to the South Rings' southeast–northwest axis) and the occurrence of a central inner 'circle' in the South Rings (i.e. RH5; Fig. 3.37). Not only is this true of the range of activities attested to, particularly metalworking and salt production, but even the size of their pottery assemblages. When taking into account that the western third of the North Ring was not excavated and that it had only a single circuit, then in terms of the proportion of deposits that were excavated at the two sites, the 133kg recovered from the North Ring might, at least in theory, seem roughly comparable to the 278kg of pottery from the South Rings. Both assemblages are considerably greater than that from Springfield Lyons (*c.* 90.1kg/13,929 sherds; Brown 2013) and – by way of comparison – vastly more than the some 7,100 sherds (plus 10 complete vessels) recovered from the Reading Business Park's Late Bronze Age settlement of 30 roundhouses (Moore & Jennings 1992).

Although at only *c.* 35m in diameter, the plan of South Hornchurch's ringwork is considerably smaller than that of the South Rings, its recovery is significant as it provides a clear 'domestic-scale' parallel. Indeed, as shown in Figure 3.37, if one strips away the Mucking enclosure's outer circuit, the two have marked affinities: primarily, their dual entranceways and central roundhouses. Even more striking is the close similarity of the South Rings' inner circuit-plan to that of Mucking's North Ring. While the latter apparently lacked a single central roundhouse (instead having a line of three), and its main entrance and buildings were all oriented due east (as opposed to the South Rings' northwest–southeast axial alignment), through the distinction of a blocked entranceway in the North Ring's southwestern circuit it also originally had two entrances, even though – like Hornchurch's – their rear access was not directly in relationship to their respective buildings.

Based on this, the argument could be mounted that, initially, the South Rings only had a single circuit and that its outer ditch was subsequently added. By extension, the greater scale and obvious recutting of the North Ring's circuit (eradicating its southwestern entrance) might then be considered the sequence-equivalent of the construction of the South Rings' outer ditch-line. Although there is no basis by which definitely to prove this, the independence of its inner circuit could be inferred by the fact that its southeastern entrance appeared to have its own 'four-square' gateway setting. Equally, that the profiles of

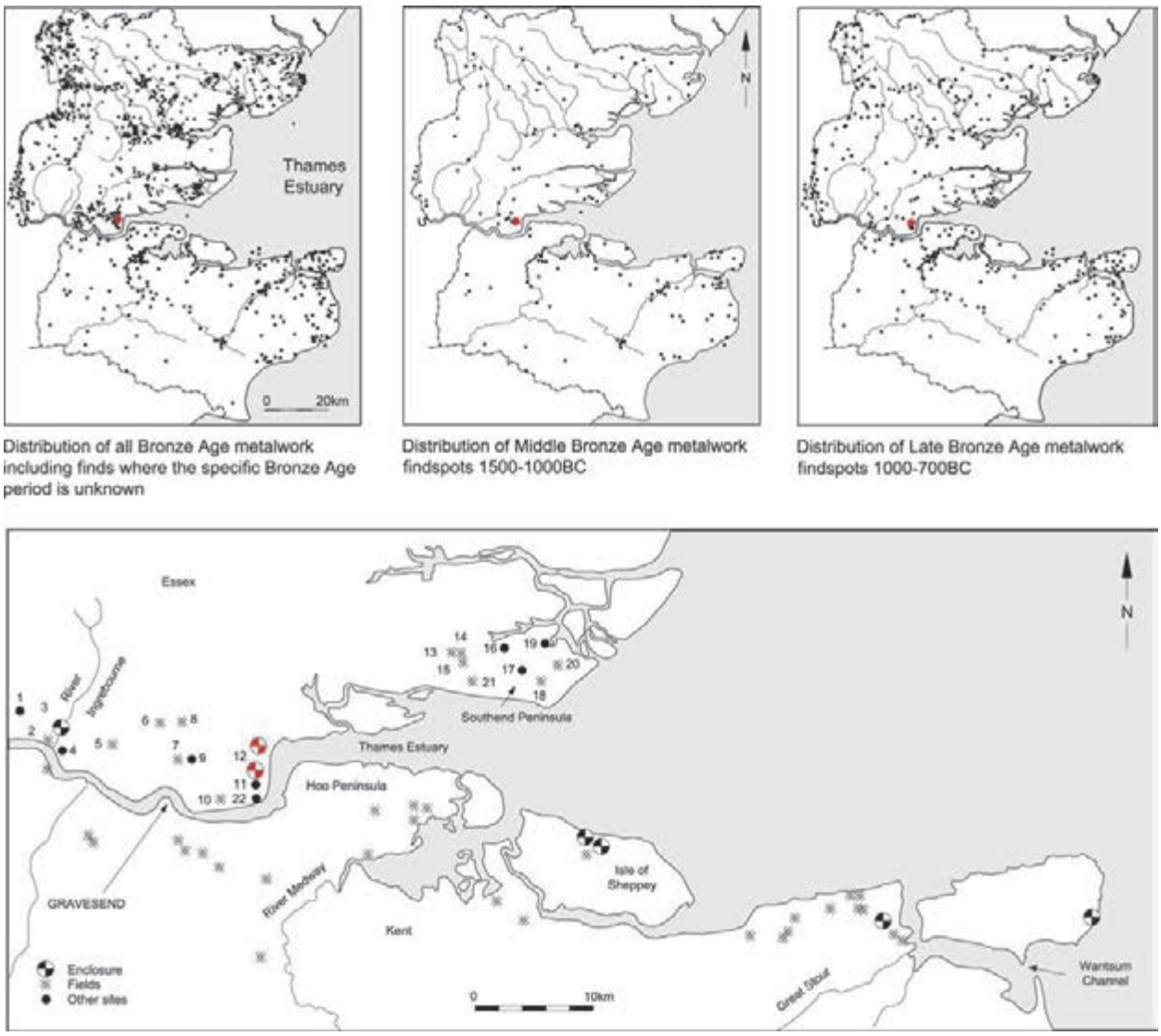


Figure 3.39. Enclosures and Metalwork (after Yates 2013): top, Bronze Age metalwork in Essex and Kent (compiled from data supplied by Martyn Barber, HER and Portable Antiquity Scheme records); bottom, map showing later Bronze Age fields, enclosures and droveways: 1) Church Lane, Dagenham; 2) Bridge Road, Rainham; 3) South Hornchurch; 4) Site 9, Horndon to Barking pipeline (HBP); 5) Whitehall Wood; 6) Site 5, HBP; 7) William Edwards School; 8) Site 4, HBP; 9) Baker Street, Orsett; 10) Gun Hill; 11) Linford; 12) Mucking; 13) Eastwood) 14 & 15) Southend Airport; 16) Butlers Farm; 17) Wick Farm; 18) North Shoebury; 19) Baldwin Farm; 20) Great Wakering; 21) Prittlewell; 2) East Tilbury (source, Yates 2007 with additions).

its two circuits differed so markedly – the inner being much broader and irregular, and suggesting a greater level of maintenance – could also indicate that they had different development histories.

The elaboration of the South Rings' main entranceway would be broadly comparable to Springfield Lyons (Fig. 3.37; Brown & Medlycott 2013), though the latter lacked Mucking's side-chamber settings and which have more hillfort-like affinities (see e.g. Bowden 2006). Certainly it speaks of strictly controlled spatial access and seems to confirm the ringworks' role as essentially defended farmsteads; the same would also be true of Hornchurch's northeastern entrance.

The South Rings' 'special' depositional practices have parallels with other ringworks. Based on various criteria, intentional deposits were, for example, identified in the Hornchurch enclosure (Guttmann & Last 2000). More obvious would be the cremation with a gold ring in the North Ring's northern entrance terminal and the dumps of Ewart Park-type sword moulds in the northern butt-ends of both Springfield Lyon's eastern and western entrances (Brown & Medlycott 2013, 19; Needham & Bridgford 2013).

As to the status of the enclosure's inhabitants, the excavations yielded no single object to rival the North Ring's gold ring. Yet, given that both sword and spear moulds were recovered, it could be inferred that the

ringwork's household was of high status. Moreover, the scale of its ditch circuits might suggest that its construction may have involved more than just its resident members, raising the possibility that its household may have been in a position to command the labour of 'others' (see Evans 2003 for further discussion of this theme).

There can be little doubt that Essex's ringworks related to a distinct enclosure phenomenon and were an expression of a specific socio-cultural grouping. However, based on the evidence of the South Rings, there seems no reason to think that they necessarily mark any kind of 'arrival' or even imposition within the local landscape. Pre-ringwork Late Bronze Age occupation has been demonstrated within their immediate vicinity. The distribution of finds within the ditches of the South Rings indicates that the ringwork's two 'hallmark' activities – metalworking and salt production – may well have occurred in the vicinity prior to the establishment of the enclosure proper (though this argument is reliant on the sequencing outlined above). In point of fact, the argument could be made that the ringwork's central circle/roundhouse (No. 5) simply reflected the rebuilding of the smaller 'under-lapping' southerly post-ring (see Fig. 3.19). In which case, this could be interpreted as attesting to direct settlement continuity between the area's pre-enclosure and ringwork households.

Given that so much of the project's pottery from this period has never been identified or analysed, what we cannot know at this time is the exact scale of this 'open' settlement. As discussed, the spread of saddle querns and period-attributable briquetage in the south of the site could suggest that it was relatively large (*c.* 2.4ha), but, of course, we cannot grasp to what degree this attests to directly contemporary settlement or successively shifting foci. Nor can we currently know whether adjacent 'open'/exterior settlement continued after the establishment of the enclosure. The pressing issue, in other words – and one that will have to await future research in the finds archives – is whether the ringwork marks a consolidation of the area's previously more widespread settlement and/or represents a delineation or 'elevation' of a specific household amid 'the mass'.

Ringwork Communities and 'Monumental Resonance'

The Thames Estuary ringworks have recently been the subject of much review. Stressing their strategic locations and correspondence with concentrations of settlement, fieldsystems and bronze metalworking (Fig. 3.39), Yates characterises them as high status enclosures relating to a bronze-based prestige goods economy (2007, 24–6 & 2013). Similarly emphasising their association with weapon production, Bradley essentially sees them as defended elite residences, while admitting the possibility that – comparable to henges – some may have involved wider public ceremonies and feasting (2007, 206–10; see also Needham 1992, 52–6). As discussed by Ellis (in Allen *et al*. 2008, 306, fig. 24), if including the recent Kent examples such as that excavated at Kingsborough, they clearly show considerable variability, with the latter – at 130m across (Enclosure A) and without any significant settlement component – differing markedly from the main Essex enclosures (see, also, Champion, Chap. 6, below). The question could even be raised to what extent the Essex ringworks themselves represent an overarching group or type. This, in part, is prompted by the proximity of the Springfield Lyons and Great Baddow ringworks, with both having near-matching segmented circuit-plans and seeming so alike as to suggest a 'pairing' (Needham 1992, 52) and which has even been termed their 'partnering' (Needham 2013). Indeed, the same could also be said of Mucking's South and North Rings, and to these could perhaps also be added the other two circular cropmarks known nearby at Thurrock (Priddy & Buckley 1987, fig. 33, nos. 14 & 18). While the latter's single circuit-plans, evidently with east-facing entranceways, would seem to have most in common with the North Ring, at 60 and 70m diameter, in scale they fall between it and the South Rings. Although the dates of Thurrock's 'circles' have yet to be established, these four enclosures appear to constitute a distinct local grouping, as they occur within only some 4sqkm of each other. Other large (*c.* 50–55m diam.) circular cropmark ringwork-candidates are also known further north in the county (Sturmer & Felstead; *ibid*. nos. 15 & 16), but these are still untested by excavation. The closest regional parallel for the South Rings would be the concentric plan of that at Belchamp St Paul on Essex's northern border (*ibid*., no. 19; 60m diam.), although this proved to be of Neolithic/earlier Bronze Age date on excavation (Brown & Germany 2002).

It is at this point that the implications of the South Rings' concentric layout need addressing. Variously in reference to issues of 'defence in depth' or zoned activities, the general principles of concentric spatial organisation have been explored elsewhere (Evans 1989a) and do not require reiteration. By any normative 'enclosure logic', the arrangement of the South Rings makes little sense. If admitting that a bank accompanied the outer ditch, then the berm between the two circuits would seem too narrow for any obvious 'zoned' functional use; it can only be presumed that its prime role related to the redefinition of the enclosure's perimeter. Yet, if the ultimate goal was simply a substantial defensive barrier, then the Rings' double-circuit arrangement would be entirely illogical; in terms of labour efficiency, Springfield's

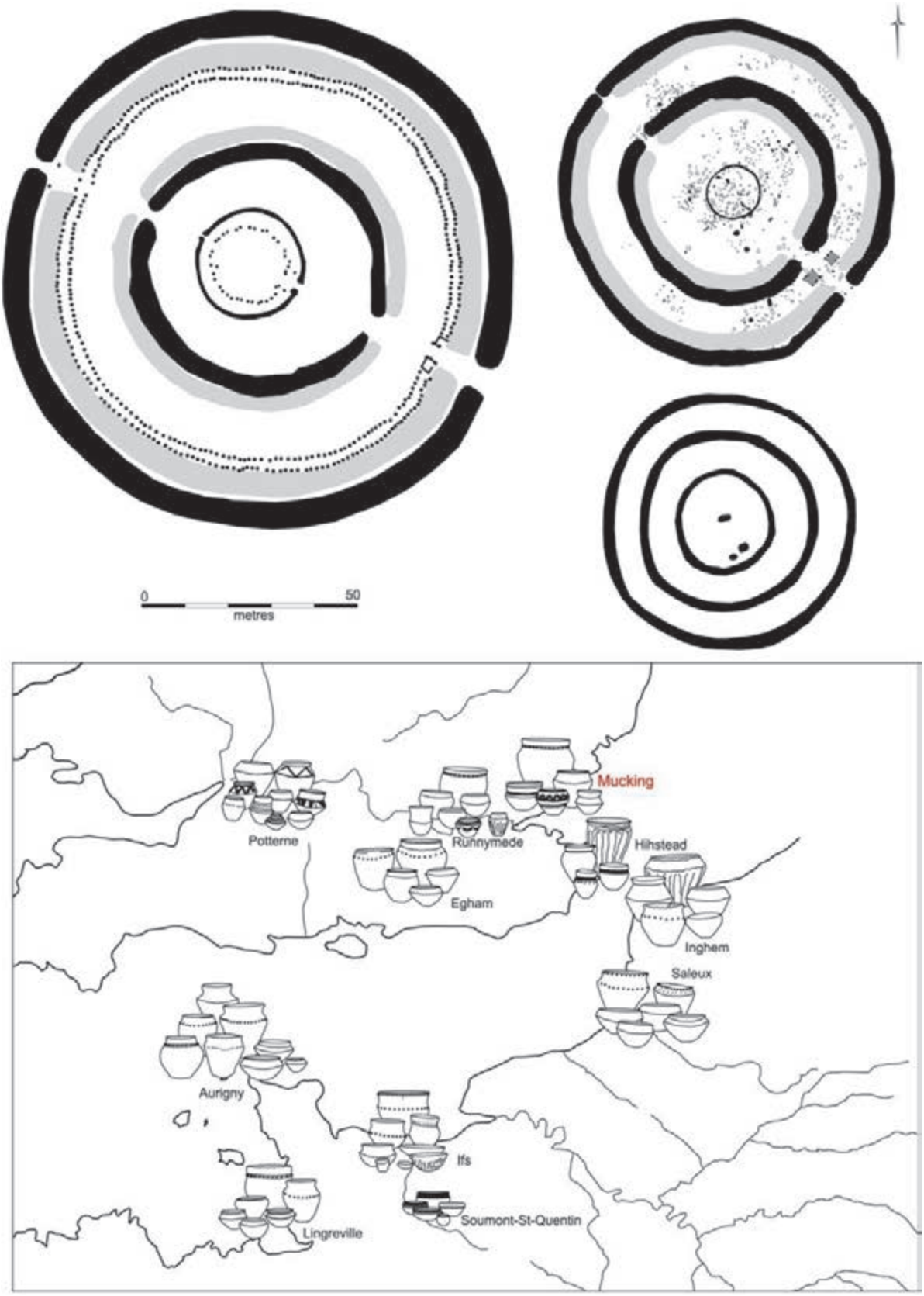


Figure 3.40. Distant Connections? Top: concentric ringwork 'monuments', with bank locations indicated: left, Thwing, Yorks. (after Bradley 2007, fig. 4.11); top right, Mucking, South Rings; bottom right, the Fréthun monument, Pas-de-Calais (Bostyn et al. *1992, fig. 3). Below is map-illustration showing Late Bronze Age cross-channel pottery comparisons (from Bourgeois & Talon 2009, fig. 3.18; computer graphic by E. Ghesquière and C. Marcigny, INRAP); note that showing 'Decorated Ware' assemblages, Mucking is here represented by the North Ring's pottery.*

single large circuit would have been a far more expedient way to achieve this. It would, therefore, have to be presumed that the guiding principles behind the South Rings were either inherently *symbolic* – three near-perfect rings (including Roundhouse 5's inner 'circle') – or *sequential*, with the outer circuit added later.

Of course, these need not have been alternatives and the more formal or symbolic properties of its 'design' may have only been a secondary phenomenon: the addition of the outer circuit and the concurrent establishment of the inner 'circle'. Starting as essentially a defended high-status farmstead, the enclosure may have gone on to become 'something more'. Such a scenario would be fully in keeping with the apparently placed deposition within the southeastern entranceway terminals and, also, Brudenell's suggestion that the site later hosted large group gatherings (based on the estimated number of vessels in the inner circuit's upper profile).

Yet, there could also be a more 'pragmatic' interpretation. This would have the enclosure maintain its basic function of elite residence throughout and argue that acts of group feasting and public/ritual deposition were simply an expression of its household's prestige. This argument would turn on two main factors. First, that the vast majority of the enclosure's finds generally came from the inner ditch's upper profile and that the activities attested to – ranging from subsistence practices to metalworking and salt production – were the same that occurred throughout its sequence. Accordingly, it becomes difficult to distinguish a distinct change within its function. The second point is that at some time after the establishment of the outer ditch (probably because the original bank had become too denuded; see, though, below), the inner circuit may have stopped being maintained. Becoming, in effect, redundant, it was somewhere that both 'active' middens were sited and earlier accumulated refuse heaps were, perhaps, redeposited.

If so wishing, even more dramatic scenarios could be envisaged, with the definite burnt horizons within the inner circuit's upper profile attesting to attack and the slighting of the primary-phase ringwork's defences. It may have only been afterwards that its redefinition occurred, the outer circuit established and, with it, a new embankment (behind which middens accumulated). Unfortunately, the site's excavation/recording was such that nuanced explanations cannot be demonstrated; such possibilities can certainly be entertained, but not proven.

Ultimately, the key issue determining the site's overall interpretation is how we want the past to be. Certainly the idea of it becoming a place of group ceremonies is appealing, if for no other reason than that it resonates with the henge-like principles of its layout. Yet, weighing the evidence as a whole, the second option – maintained high-status farmstead involving feasting and other 'public' actions – is held to be the more likely.

Having emphasised the constructional differences between Mucking's two ringworks and those at Great Baddow and Springfield Lyons – as well as acknowledging, as discussed by Brudenell above, that the latter's foundation appears to have been earlier than the Rings' – it would be reasonable to see the Mucking and Thurrock enclosures as constituting some manner of immediate social grouping or network. While other comparable cropmark enclosures of the generic 'type' surely remain undetected, and obviously resonating within a broader, later Bronze Age 'circular enclosure context/complex' in Eastern England, this could suggest quite a localised 'enclosure community'. To propose this would be to accept the fact that, without excavation, the broadly comparable plans of the Mill Hill enclosure in Deal, Kent or those known from further north in Essex cannot be really evaluated. Yet, lingering in the background, there would have also to be the striking similarity between the South Rings and Thwing in Yorkshire (Fig. 3.40). Lying hundreds of kilometres to the north, how do we account for their seeming affinities – was it a case of long distance travel by individuals and direct impact? Apart from Thwing's substantially greater size, fortunately it has been thoroughly excavated and this allows for more nuanced comparison. The primary difference is that, not only did the more henge-like Thwing's inner circuit's bank lie outside of its ditch, but it also dated to the Middle Bronze Age (e.g. Manby *et al*. 2003, 65–7; Manby 2007). This is sufficient to deny any notion of a direct connection between the two enclosures. They should, instead, be considered as an expression of a Bronze Age circular enclosure 'grammar' generally (see Bradley 2007, 206–22 and 2012, 130–2) within which concentric arrangements will invariably appear superficially alike.

Where now a much closer cultural connection has been recognised is with the later Bronze Age enclosures of Northwest France. The interrupted-circuit plan of the Malleville-sur-le-Bec enclosure is strikingly like that of Springfield Lyons (Bourgeois & Talon 2009, 48, fig. 3.9). As shown in Figure 3.40, while the South Rings could appear to have marked affinities with Fréthun's 60m-diameter concentric circle arrangement, the latter was of earlier Bronze Age attribution and was mortuary-related (Bostyn *et al*. 1992; see also Webley's summary of the Continental parallels for British ringworks in Bradley *et al*. forthcoming).

It only seems appropriate to conclude this discussion by returning to what can be considered the South Rings' starting point – its affinities to earlier, Neolithic monuments. Advocating more than 'coincidence of

form' (after Manby), Brown and Medleycott in their recent Springfield Lyons volume cite Gosden and Lock's 1998 'Prehistoric Histories' paper concerning the 'mythical history' of prehistoric places in connection to the ringwork's neighbouring monuments, particularly its causewayed enclosure (2013, 155–9). It is surely relevant that both Mucking's Rings, and especially the South Rings, apparently lacked any such evocative associations (it, after all, being the most formally concentric and henge-like of any of the ringworks excavated in Southeast England). Mucking's Rings appear to lack any direct monumental linkage (the causewayed enclosure at Orsett lying nearly 2km away). Admittedly, the north site-area's main barrow field may have marked the division between the North and South Rings' respective 'territories'. It can even be speculated that Roundhouse 5's circle – almost folly-like – mimicked the denuded form of its adjacent barrows. Nonetheless, the South Rings – while obviously adopting a new enclosure 'concept' (i.e. the more widespread 'ringwork phenomena') – probably developed from out of the immediate area's later Bronze Age settlement and was apparently without any obviously direct, long-term monumental reference within the local landscape.

Notes

1 See also now Lyons 2011, 15–20 concerning the *c.* 100m-diameter enclosure at Marks Warren, Essex and, also, Howell *et al*. 2011, 42–3.

2 While in the recent Stansted investigations both posthole (-only) and gully-surrounded Middle Bronze Age roundhouses were recovered, its Late Bronze Age buildings were unditched (Cooke *et al*. 2008, 37–66; see Chap. 4, below).

3 By the same token, leaving aside the extraordinary structure RH110 (see Chap. 4 below), doubts must also exist concerning the one Middle Iron Age-attributed post-built roundhouse, RH47. Just over 7.1m in diameter, this was located in the 'mid-field' and in the area of the 'Belgic Banjo' (977N × 265E). It was defined by 15 postholes (*c.* 0.3m diam.; 0.05–0.25m deep), with a further 24 pits/postholes within its interior. However, the five sherds of associated Middle Iron Age pottery may have derived from later, non-building-related features and, instead, this structure might also have been of Late Bronze Age date.

4 Unfortunately, human bone reports, as such, could only be located for five of the cremations. On this basis, it would be wise to regard the remainder of the attributions as unsafe.

5 The archives hold a largely complete draft-volume manuscript by Margaret and Dermot Bond. Entitled *Mucking Crop-marks, Essex: two earthworks of the later Bronze Age at Mucking, Essex*, it was intended to appear as the first volume in an *East Anglian Archaeology* Mucking Papers Series. It is essentially the draft of what was eventually Bond's 1988 North Ring's volume along with a lengthy, if rather disjointed, summary of the South Rings. The extent of rewriting demanded by the manuscript's reader is what scuppered the joint 'Rings' book; nevertheless, its South Rings summary has proven useful in the assembly of this text.

Also insightful concerning the project's post-excavation procedures is that Peter Northover kept and kindly let us see his relevant correspondence. Margaret's letters convey a considerable degree of chaos and funding-driven haste. For example, on the 10th of August 1983 she wrote to him " I can't supply a definitive note about LBA metalwork at Mucking. *Finds processing has been much delayed by economies*"; despite the fact that some six weeks later publication plans were still not finalised ("… while the imminent publication is not definitive for the 1965–78 excavations – just for the North Ring report which was handled by DOE's Central Excavation Unit. A better place would be in a volume given to metalworking evidence: *but publication plans are very fluid*"; 22/09/83), on the 9th of November of that same year she related "Further to my letter of August 10th, I wonder if you can now send me your report on the Mucking South Rings ingot fragment – *the site report is now with the editor and awaits your contribution*" (emphasis added throughout). A measure of charitable understanding is warranted in this context; through unit monitoring we are well aware of the half-truths concerning the proverbially promised near-completion of site publications that authors tell both themselves and others to keep going through 'the grind'.

6 2810±70BP/1250–820 cal. BC.

7 HAR-1634/1260–790 cal. BC.

8 Tellingly, in its original notebook entry this circle was actually referred to as the 'inner ring' and was only subsequently designated a roundhouse.

9 This contribution does not included discussion of the MPX drawn-archive material presented earlier in this chapter, nor the residual Late Bronze Age pottery from the Iron Age North Enclosure's circuit (see Brudenell, Chap. 5 below).

10 This contribution was written only having access to Springfield Lyons' bulk charcoal-sample dates and without the benefit of its more recent AMS series. Based on the latter's dating model, the site is held to have been occupied by 1210–980 cal. BC and abandoned in 840–690 cal. BC (both 94.5% probability; Meadows *et al.* 2013, 145).

11 Apparently dating to 1983 (but with indications of some later updating), the report covers both the North and South Rings' assemblages. Due to circumstances it has proven impossible to have it rewritten; nevertheless, given the significance of the material its inclusion in full is felt to be warranted. Obviously, its arguments concerning the direct contemporaneity of the North and South Rings are made without the benefit of Brudenell's chronological analysis above. It should also be noted that eventually during MPX all of the site's fired clay was examined.

12 Now see Needham and Bridgford 2013.

13 The site's clay fabrics are recorded in the full archive, with the fabric descriptions published by P. Barford in Wilkinson (1988, 97) and Bond (1988, 39 & 41).

14 As of 1999.

15 Barford and Mainman's contribution obviously related to a much wider programme of clay analyses. Aside from the Neutron Activation and diatom studies

outlined in Chapter One above, this extended to Williams's pottery thin-sections (see Brudenell, above); also undertaken for the North Ring (Bond 1988, 55), we have not here included the latter's results due to a lack of context-provenance for the examined sherds. Citing Mucking's results, clay sourcing also featured in the neighbouring Grays Bypass investigations of 1979/80; their variability led to the conclusion that "until the first-second centuries AD, raw materials probably came from within 3-4km of each settlement" (Wilkinson 1988, 126, table XV).

16 See Figure 3.25.1 for 'Box' location and Figure 3.22 for bone species distribution.

17 The Feddersen Wierde sample was apparently a 'long shot'. Collected during a site visit there by Margaret Jones, its inclusion was based on D.F. Williams petrology report of the site's Anglo-Saxon pottery; the hope being to find that Mucking's pottery of that date had been brought over by German settlers. For obvious reasons, the location of Sample 2, said to have been taken by Margaret from 'near an oak tree', cannot be ascertained.

18 By no means a direct parallel, but perhaps comparably 'special', are the Late Bronze Age dated concentric post-rings at Hunt's Hill Farm, East London, which had projected ring-diameters of 23 and 30m (Howell *et al*. 2011, 39).

Chapter 4

Compounding Spaces and Connected Communities Iron Age (I)

For the sheer quantity of its data, Mucking's Iron Age is, perhaps, its most daunting phase, with the multitude of gully-surrounded roundhouses that dotted the terrace appearing almost like star constellations.[1] Tackling it is largely a matter of trying to distinguish broad developmental structures and processes amid the mass of data. Its interpretation is not aided by the fact that its pottery is so remarkably insensitive and is flint-gritted throughout the sequence, apart from the terminal Iron Age wares. Indeed, not all of it was ever studied or quantified; add to this the paucity of economic data and treatment of this period cannot be a subtle exercise.

As suggested by Figure 4.1, while Mucking was being excavated the region's Iron Age chronology had yet to be firmly established. On that post-1978 dye line illustration, in contrast to the green of the site's 'Earlier Prehistoric MBA/LBA' fieldsystem and barrows, its blue circles ascribe the vast majority of the site's ditched roundhouses (numbering over 100) to the 'Later Prehistoric LBA/EIA'. Admittedly, this figure was very much a draft, as included in the latter are structures that were even then known to be of Roman attribution (Jones 1974, 186 & 196). Nevertheless, it suggests that at the time the continuity of flint-gritted pottery into the Middle/later Iron Age was not fully appreciated and, hence, they were dated 'Early'. This would accord with their attribution in the 1975 interim report (Jones & Jones 1975, 142, fig. 48).

Somewhat conversely, in the *Antiquaries Journal* paper of the year before, most of the site's Iron Age wares (and buildings) were assigned to 'Iron Age B' in relationship to Hawkes' ABC System (Jones 1974, 188–9; e.g. Hawkes 1959). This, preceding the Belgic horizon, essentially corresponded with the Middle rather than the Early Iron Age (see also Fig. 1.18). While this would suggest that the 1975 interim report had probably been drafted a number of years before its eventual appearance in print and that the 1974 paper reflects a subsequent reappraisal, this would still not explain why this predominantly 'Early' attribution would feature on a phase-plan dating after 1978 (i.e. Fig. 4.1). Aside from indicating that as late as the mid 1970s the Joneses were still adherents of Hawkes' by then outmoded chronology[2] – as opposed to Cunliffe's 'Early, 'Middle' and 'Late' nomenclature (1975; see also Hodson 1964) – this suggests a certain chronological confusion. This, in itself, is not surprising if one remembers that even in 1968, the Middle Iron Age was still essentially a 'void category', filling the gap between 'classic' Early Iron Age wares (e.g. Darmsden-Linton) and later, Belgic pottery (Cunliffe 1968, 183). Indeed, it was not until 1978 and the publication of Drury's Little Waltham (1978a & b) that the region's Middle Iron Age pottery was really first identified. As outlined in the preceding chapter, this also coincided with Barrett's reappraisal of Post-Deverel Rimbury wares (PDR) and the subsequent re-dating of the South Rings. As opposed to the Early Iron Age dominating Mucking's sequence, most of what was originally designated to that period shifted either to the Late Bronze Age or the Middle Iron Age as a result. This was, in fact, to the point of over-compensation and very little was actually left ascribed to the Early Iron Age. This is a crucial issue and is one that has dogged our work. It is particularly unfortunate as on it turns many of the issues of the terrace's later prehistoric settlement continuity.[3]

It should further be emphasised just how important the later 1970s were for establishing the region's Iron Age chronology. In this capacity, Mucking's Iron Age data figured prominently in two papers within the 1978 *Lowland Iron Age Communities in Europe* volume (Cunliffe & Rowley eds.: Rodwell 1978 and Drury 1978a). Equally, as shown on Figures 5.24 and 6.2, Mucking also contributed a 'type ware' to the period's studies – its La Tène-style decorated

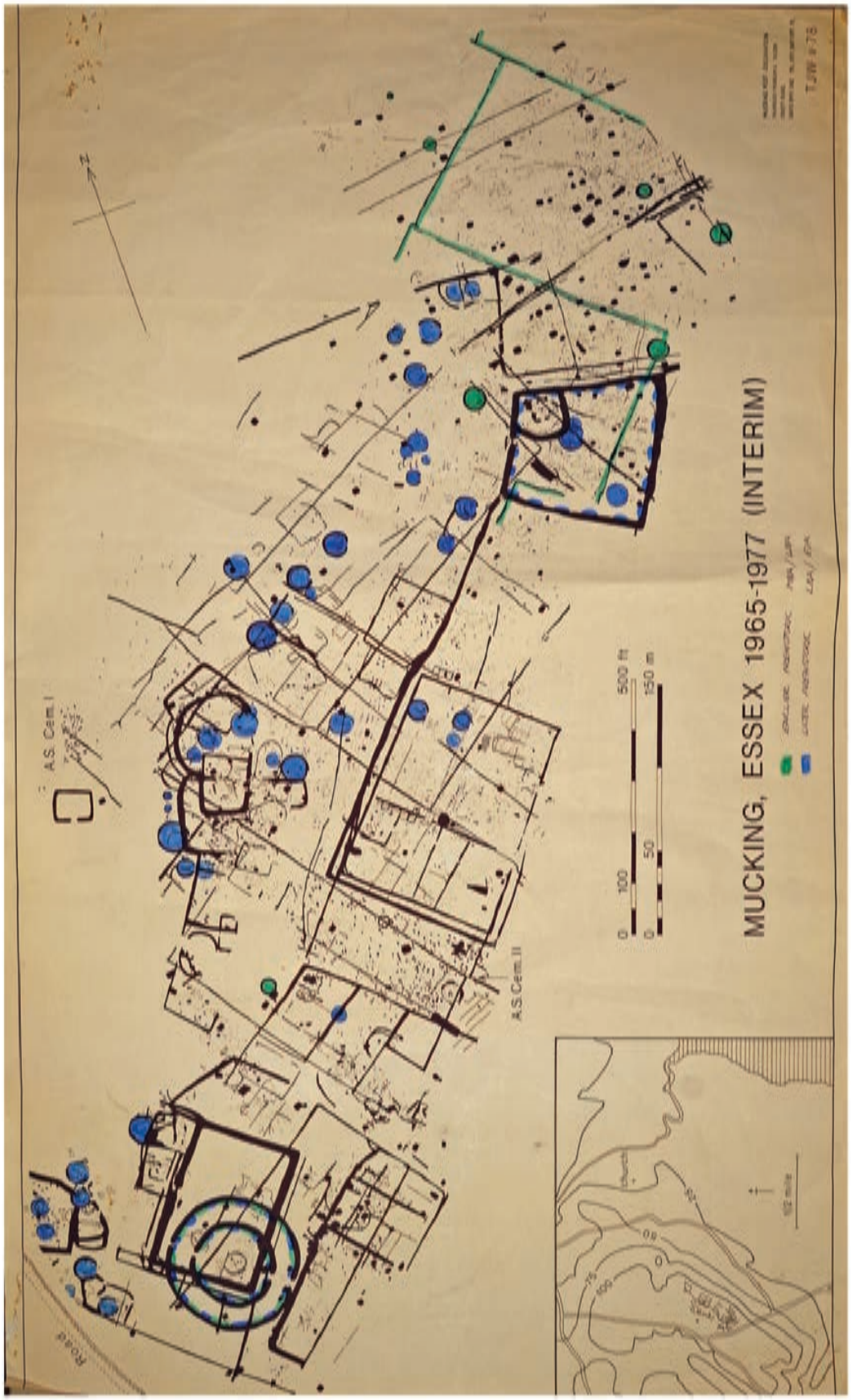


Figure 4.1. Dyeline phase-plan showing Bronze Age barrows, fieldsystem elements and roundhouses (note that all of the later were then attributed 'LBA/EIA').

pottery – whose Thames 'gateway' distribution is reminiscent of the preceding chapter's Bronze Age metalwork plots (see Fig. 3.39; Cunliffe 1975 and Thompson 1982).

A gem of Mucking's archives and presumably of MPX or even earlier vintage, Figure 4.2's top illustration effectively amounts to a 'cognitive map' of the site's main enclosure components. Indicating only that the otherwise omitted prehistoric roundhouses and Anglo-Saxon sunken huts were found across the whole site, the North and South Rings are clearly entitled 'Late Bronze Age *Hillforts*'. The North Enclosure is labelled as a '*Native* Earthwork' in direct contrast to the Banjo complex's '*Belgic* Settlement' (i.e. introduced populace), and also relevant is RBI's appellation as a '?Roman *Military* Earthwork'. In short, it tells of the project's dynamic invasion-/migration-dominated framework at the time; add to this its distinctly militaristic emphasis, and the sketch plan expresses the project's rapidly outdating cultural history paradigm (see, though, Chap. 6).[4]

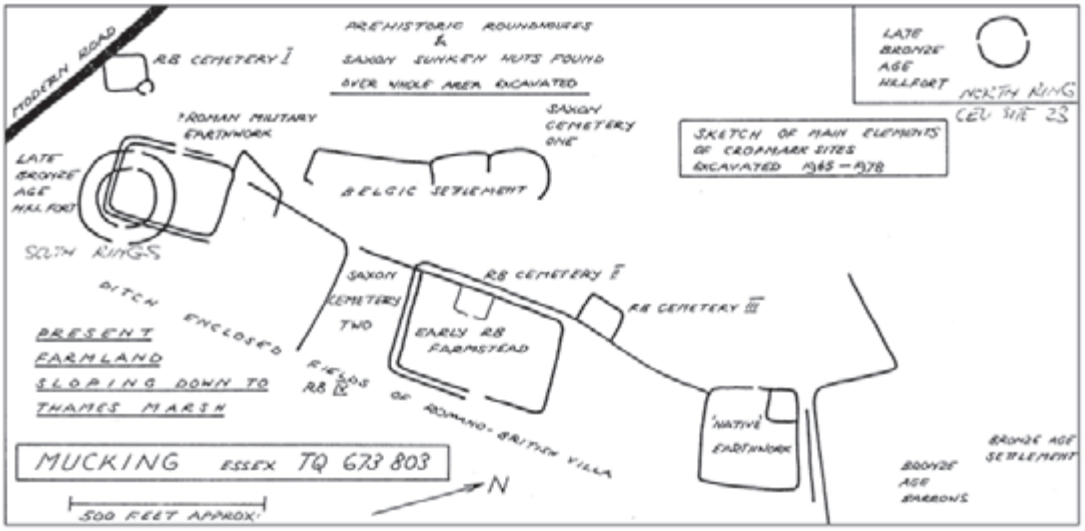
Faced today with the plan of Iron Age Mucking, from the outset a number of research issues suggest themselves. The first is the dispersion of its roundhouses, especially throughout the site's western half (Figs. 4.2 & 4.15). Next is the motivation for the establishment of its ditched household compounds. There are four main enclosures (Fig. 4.15): two of quasi-organic layout – the so-called *ABC Enclosures* in the extreme south and the *Banjo Belgic Area* in the western mid-field (with the small *1100 Enclosure* nearby) – as well as the rectilinear *RBI* and, in the northeast, the *North Enclosure*. The latter is particularly significant as, of sub-square plan, its southwestern corner was linked to a southward ditched boundary that then went on to determine the axes of the subsequent Romano-British landscape system. While obviously not all likely to have been directly contemporary for the entire span of their duration, it is helpful to realise that these main enclosures lay at an interval of only some 200m from each other. Though not of an altogether different order than the interval that has now been recognised between contemporary later prehistoric settlements in other areas of southern England (see Evans *et al*. 2008 and Chap. 5, *Discussion*, below), they were nonetheless closely set.

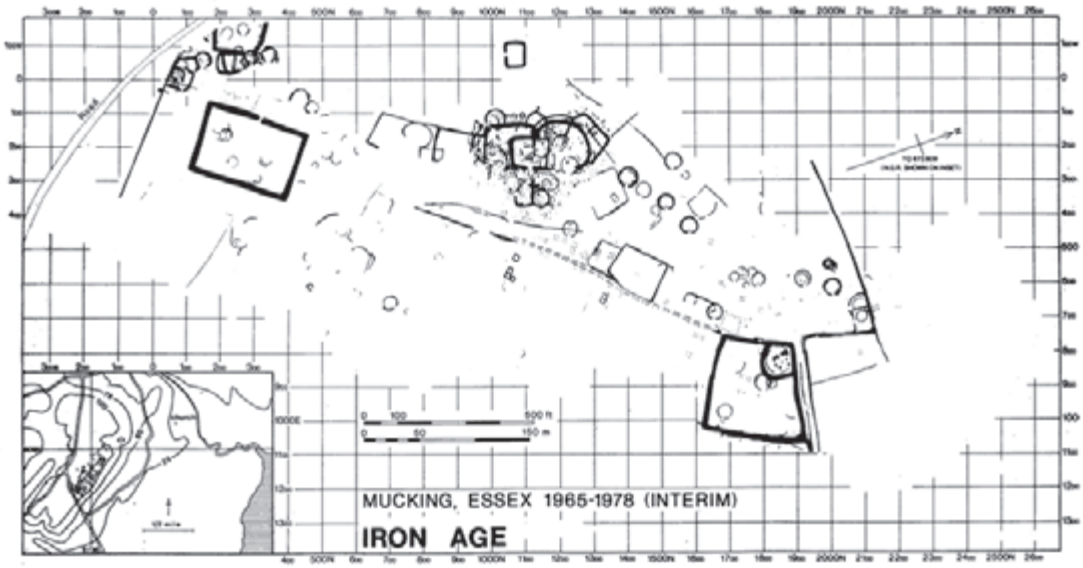
As was outlined in Chapter One, the Joneses' interpretation of Mucking's Iron Age seems to have focused on the widespread distribution of its roundhouses. Their 'transhumant Belgic shepherds' arguments (see Chap. 1, above), in which the organic-form enclosures were essentially interpreted as sheepfolds, seem to have been prompted by the low finds densities encountered within a number (and the overall paucity of bone and plant remains). At the time of excavation, there were few comparative sites known to help inform interpretation. Listed in archival documents as possibly providing a morphological parallel for the Belgic Banjo complex (or, at least, some of its components; see below), Farmoor's interpretation may have been influential:

> Farmoor implies a more complicated social structure than might have been assumed for simple rural farmsteads. *The people on the floodplain perhaps would have had some other permanent settlement to which they belonged, or possibly were more or less nomadic with winter encampments elsewhere*. Again the evidence is insufficient to be able to determine the real relationships, and the possible complications of grazing rights and the control of the use of the floodplain is another whole area of speculation for which there is no evidence.
>
> The evidence from the floodplain farmsteads at Farmoor should make us wary of the general distinction between "mobile northern pastoralists" and "more sedentary cultivators of the south" (Lambrick 1978, 113–14, emphasis added; see also Lambrick & Robinson 2009, 115 concerning that site's now rather less dramatic interpretation).

It was only late in the programme – following the publication of Gent's 1983 paper – that it was realised that the period's many four- and six-posters were probably raised granaries (the possibility of this, though, first being raised in a 1974 interim report). Logically, when combined with the sheer number of quernstones recovered, this should have given rise to a recognition of the more mixed farming basis of the terrace's Iron Age communities; unfortunately, there is no available overall period-summary from that era to indicate whether such a re-orientation ever occurred.

The recovery of what was then held to be the finely decorated handle of a La Tène-style 'mirror' (now thought a knife; see Appleby, Chap. 5, below) and the period's richer burials seems to have had little integration with the 'nomadic shepherds' story; these might have indicated a 'different', more elite and/or 'connected' Iron Age than was then propounded. It has, in fact, been the site's arrays of square barrows that led to the most significant discovery of the current publication programme: the formal/ritual Late Iron Age/Conquest Period complex preceding the Roman Double-Ditch Enclosure in the east centre of the site. Hereafter this is entitled *The Plaza*. Effectively assembled from a series of rectangular component-parts with a shared orientation – the square barrows, western 'avenue' of granaries and a great post-set space – this has vague affinities to Gregory's Fison Way, Thetford complex, with its multiple fence-lines (Gregory 1991; see e.g. Wait 1985 and Smith 2001 on later Iron Age ritual space and sanctuaries generally). Fison Way was, though, excavated after the end of Mucking's excavations. It is therefore not at all surprising that this remarkable complex at Mucking went largely unnoticed (the eventual recognition





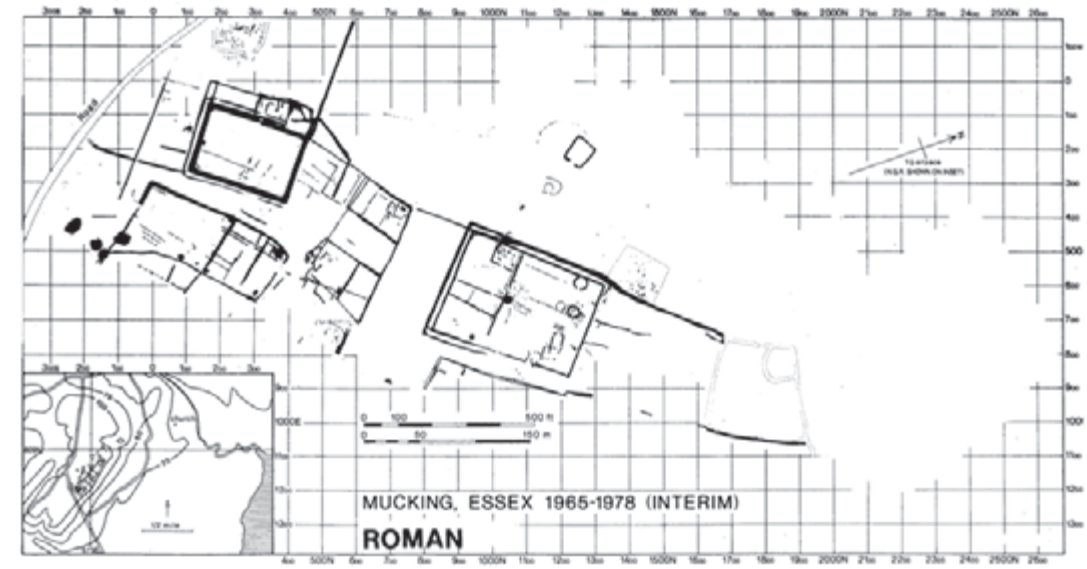


Figure 4.2. Above, labelled enclosure sketch plan, presumably intended for public display purposes (note labels, 'Ditch enclosed fields of Romano-British Villa' and 'Native Earthwork' vs. 'Belgic Settlement'); below, MPX Iron Age and Roman phase-plans.

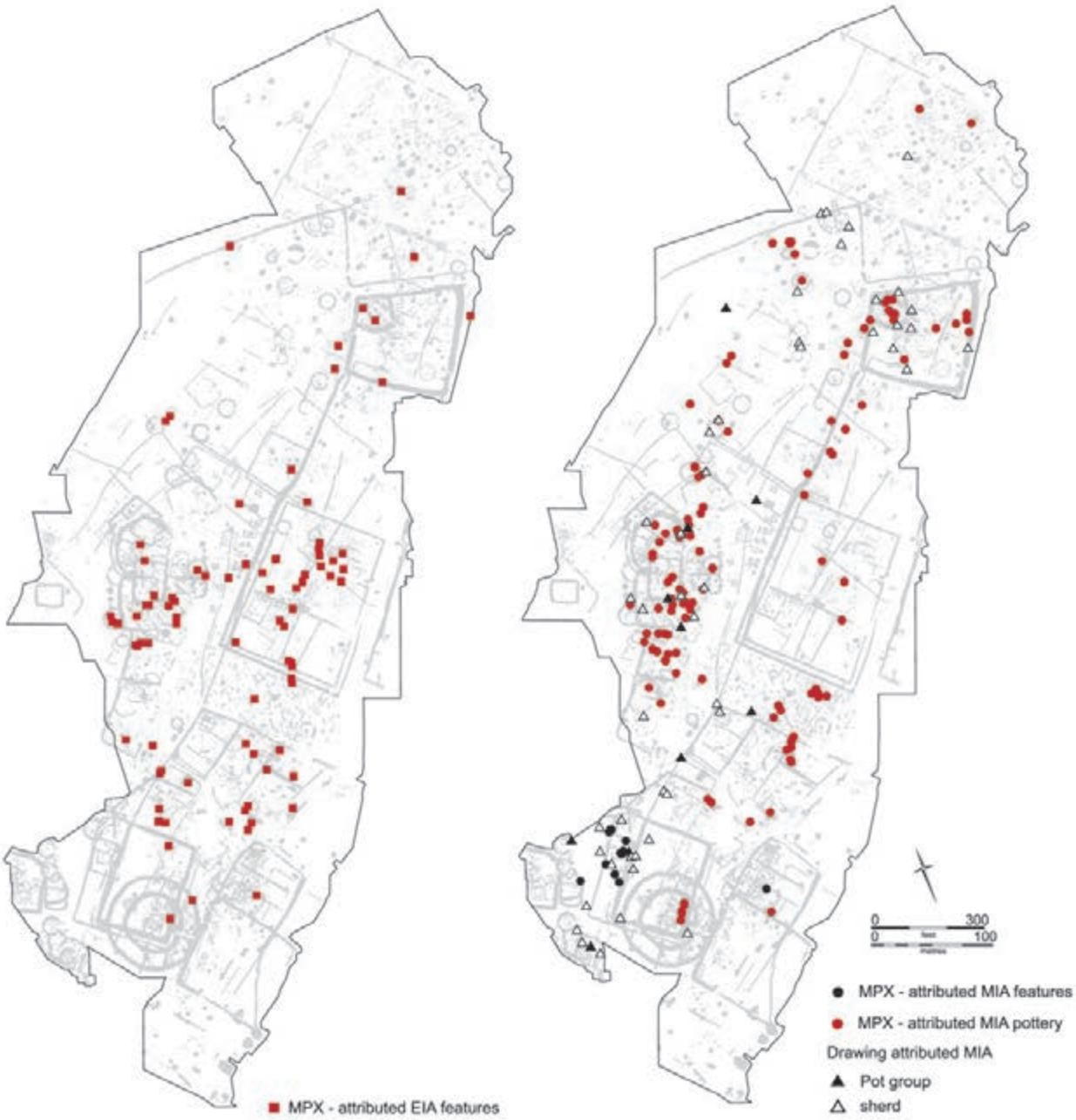


Figure 4.3. MPX-phase Distributions: left, Early Iron Age-attributed features and, right, MPX-attributed Middle Iron Age features and pottery (and drawn pottery).

of the square barrows as such would seem to have occurred in the early 1980s; see below and Whimster 1981, 128 and Thompson 1982, 783).

Our aim in this chapter is to present the mass of data from Iron Age Mucking in as direct a way as possible. After discussing the evidence of the terrace's Early Iron Age and gazetteers of its structures, there follow summaries of the compounds and their sequences. Thereafter an outline of the development of its Conquest Period/Early Roman landscape is presented, followed by Chapter Five's presentation of relevant material culture assemblages, an economic summary, a series of distributional case-studies and, then finally, a closing discussion.

However reasonable this sounds, the scale of the period's chronological problems should not be glossed over. Figures 4.3 and 4.4 illustrate these well. Figure 4.3 (left) shows just how few features were attributed to the Early Iron Age during the MPX-stage (there being almost no mention of this sub-period in HBMC2's period-summary below), with the right-hand plot displaying the same for the Middle Iron Age. The latter – in tandem with the BM/EH-phase analyses – helped inform the

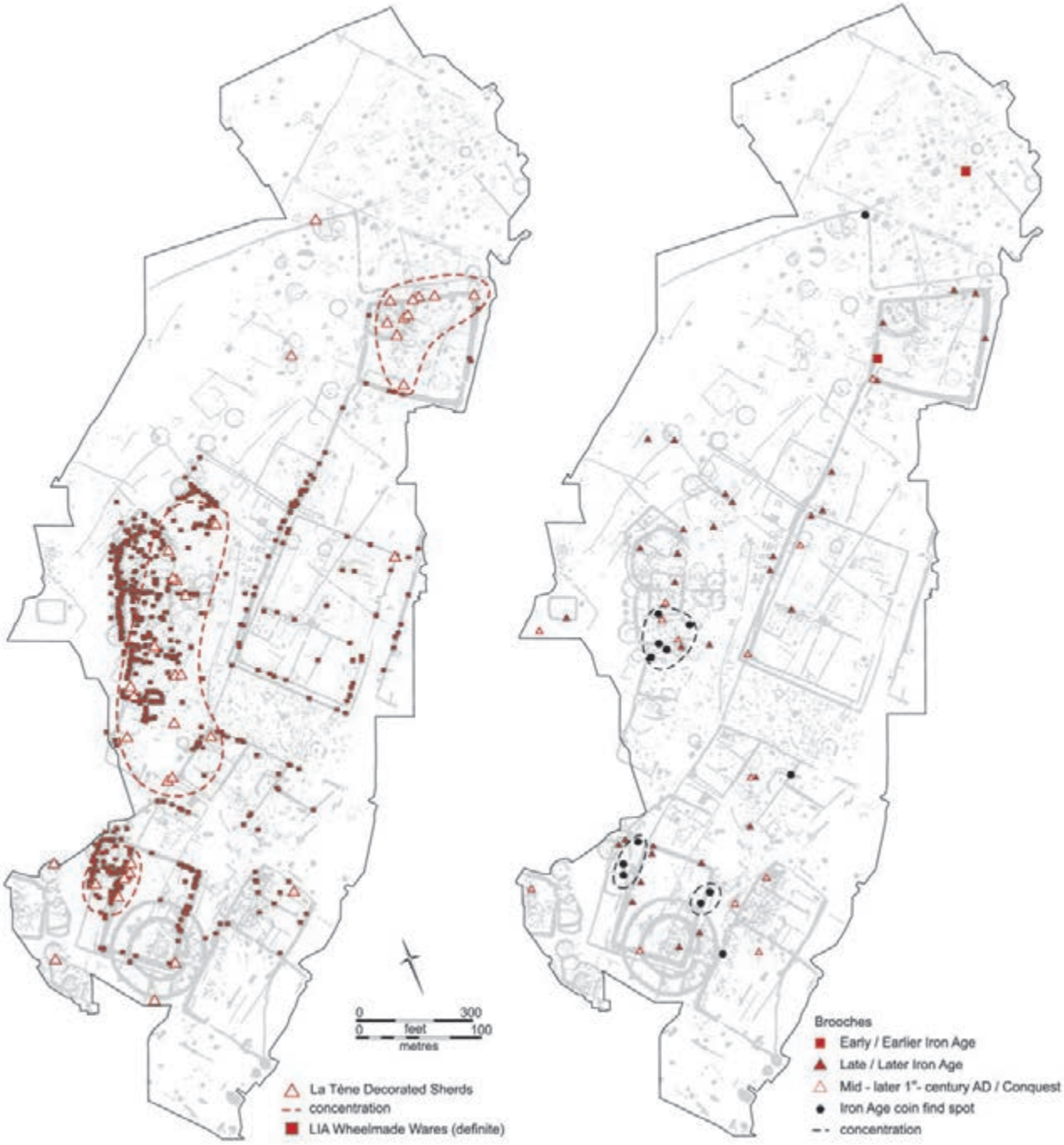


Figure 4.4. Later Iron Age Distributions: left, pottery; right, brooches and coins (see Figs. 5.23, 5.25 & 5.26 for further detail).

sample-selection of Brudenell's pottery study. Yet, following his work and as detailed in the section that follows, near the end of our programme the Early Iron Age still presented the greatest gap in the terrace's chronological sequence. Though we were relatively confident about assigning the vast majority of the site's eavesgullied roundhouses to the Middle/later Iron Age, the Early Iron Age was still marked by its paucity. Attempting to remedy this, Brudenell subsequently went through all the MPX Iron Age pottery drawings. As shown in Figure 4.6, not only was he able to identify a series of major pottery groups of that attribution but he also demonstrated just how widespread was the distribution of such wares. This is especially true of the site's northern quarter, where no ditched Iron Age roundhouses occurred and where MPX only identified a few Early Iron Age features.

While having gone some way in filling the site's Early Iron Age 'gap', this still leaves us with the obvious inadequacy of Figure 4.3 left's plotting. Of some 7000 attributed sherds within the MPX prehistoric pottery catalogue (excluding roundhouses), just over 100 are

Figure 4.5. EH/BM-phase plan highlighting 'latest Pre-Roman Iron Age to Claudian/?Neroian-dated features'; note also the incredible intensity of the site's excavation slots (i.e. so many thousands of hachures!).

assigned to the Middle Iron Age. While Brudenell's researches have helped address this, it still remains an analytical problem, as in reality the assemblage must include many tens of thousands of such sherds which remain unexamined.

Figure 4.4 attempts to frame the problems of the end of the Iron Age sequence (with Fig. 4.5 showing just how little was ascribed to the Late Iron Age during the EH/BM-phase). Despite there being some Late Iron Age metalwork, there was seemingly very little else of that attribution. This is a problem common to a number of Essex Iron Age sites and, based on conventional chronology, has prompted suggestions of sequence-hiatus (Sealey 2013 and forthcoming). As outlined by Thompson below (Fig. 4.4 left's plots all deriving from the current project's findings), although this still remains an issue, it would seem in this case that a certain amount of the site's Late Iron Age wares had been subsumed within its Early Roman assemblages (see Chap. 5's *Style in Landscape* third case-study, 'Late Iron Age Assemblages – 'Belgic' and Conquest Period Wares').

This issue highlights questions relating to the time-slicing of sequences (and their resultant books). Chronological divides are rarely straightforward or absolute; whatever resolution is eventually possible is often a matter of working 'back-and-forth'. Substantive reference will therefore have to be made to the Roman; this is why Figure 4.2 also includes larger versions of the MPX Iron Age/Roman phase-plans (see Fig. 1.18's sequence). Given the many ambiguities that plague this chapter, it is crucial that we appreciate how the site's components were variously attributed to these horizons. The narrative of our 'recovery' of the site's Late Iron Age features in the Belgic Banjo's text for this reason, and is why, as well as for the purposes of overall contextual scene-setting, we conclude this section with Barford's HBMC2's Iron Age landscape summary (with Margaret's comments variously indicated by strike-out and bolding; see also Going's briefer period-summary in Clark 1993, 19–20).

The iron age phases of the site have never before been shown together as **figure** ~~feature~~. Fig 000 [Fig. 4.2] shows features associated with Iron Age and 'Belgic' pottery. That is, features shown will date from any time between the end of the later Bronze Age to some time near the end of the first century AD ('Belgic' pottery seems only slowly to have been replaced by roman greyware at Mucking throughout the course of the first century). No attempt has been made at this stage to split this figure up into early and middle late phases on the basis of the pottery, but when this is done it will probably show a change from sparse open settlement in the earlier iron age to more intensive occupation on the crest of the hill consisting of large huts, some of which are associated with 'RBI' and the 'Banjo' areas.

The landscape is dominated by a series of enclosures, mostly on the west side of the site. At the south end are the 'ABC enclosures' (Jones, Evison and Myres 1968, 214–5 pl XLVIII and XLIX B, Jones 1974 fig 4 for plan). ~~With~~ **These contain** a group of hut gullies, one of these enclosures was later used for the enclosure of a Romano-British cemetery. The enclosure ditches produced middle to late iron age pottery (Jones et al 1968, 214). To the north of these **were** enclosures termed during excavation (incorrectly) the 'Banjo Area'. These produced much Belgic and shell-tempered pottery and probably date to both halves of the first century AD. The central rectangular enclosure (c1100N × 200E) is middle **to late** iron age as are the smaller enclosures to the SE. The rectangular and sub oval ditches to the west are **apparently** 'Belgic' in origin. The large number of hut gullies in this area is notable. For a large plan of this area see Jones 1972a fig 3 (see also ibid. plates XXVIII and XXIX).

To the ~~west~~ **east** of the 'Banjo' area is a zone of four and six post structures, probably to be interpreted as granaries. One six-poster and one nine-poster were burnt down and produced large quantities of daub with wattle impressions. These have produced carbon 14 dates (of 70± bc and 140± bc) and small abraded scraps of middle iron age pottery with a complete (but distorted by burning) handmade copy of a**n everted rim footring bowl** in sand-tempered ware. These features are further considered below. The square structures flank a north–south ditch running along just below the crest of the hill. Most of this feature was cut away by a Roman ditch along the same line, to the east of which are a few Iron Age features.

Seven enigmatic small square enclosures to the east of this line ~~are~~ **were** probably square-ditched barrows. Burials were found in the centre of the three northern examples but cremated bone was found in the upper fill of the ditches of the southern group, probably shallow burials were disturbed when these barrows were levelled in the Roman period when the enclosures were cut through by subdivisions of a roman field[n] ~~(n) a Roman cemetery around the Northern barrow group may have begun with Belgic cremations to the north of these barrows. (see also Thompson 1982, 783).~~ Eight inhumations NW of the 'banjo' (c1310N × 100E) were aligned on a ditch there and one contained a Belgic pot but no other grave goods (Thompson 1982, 783). It is also very likely that **part of** the so-called 'RB Cemetery III' (below) is substantially pre-Roman**, as it may have begun with belgic cremations to the north of these barrows (see Thompson 1982, 783).**

The ditch along the crest of the hill just mentioned is part of a complex of features associated with a very large sub-rectangular enclosure known as the North Enclosure (N Enc). This is 80 × 93 m and has a very deep V-shaped ditch 2m deep ~~with~~ **which had** an internal bank. The primary fill contained some middle to late Iron Age pottery and provided an archaeomagnetic **(silt)** date of 100 ± 50 bc**.** At some later date the north west corner was divided off by a ditch and palisade to form a sub enclosure. The butt ends of the original entrance were backfilled to widen the entrance. Several hut circles occur in the interior, some cut by the sub-enclosure ditch. A group of large deep pits within the sub-enclosure produced some interesting fired clay (see p.000). The ditch filled up slowly and has a Roman 'turf-line' and a Saxon late fill. The eastern ditch was re-cut several times including once in the Roman period.

To the north of the North Enclosure were a series of ditches known as the North enclosure extension ditches (N Enc Ext). It is notable that again few iron age features occur to the north of this boundary. In the corner of this ditch is an ~~interesting~~ group of hut gullies in two enclosures. In the ditch of the eastern compound was found ~~a considerable quantity of~~ metalworking debris including mould fragments

(p.000). Outside this enclosure is a massive four-post structure.

Across the crest of the hill in the north part of the site is a line of large hut gullies with wide deep 'drip trenches' and often an internal 'wall slot' (Jones 1974, 194-6 fig 5F) (possibly 340N × -70E is another example). This group of hut circles may be contemporary and if so may be middle **to late** Iron Age, as a gully is cut by the western ditch of the banjo enclosure. There is a scatter of complete and partial slight hut gullies in the south part of the site. Not all of these need be iron age, since there are Roman round hut gullies in the Double Ditched Enclosure (below).

The date of the large rectangular enclosure ('RBI') at the south end of the site is rather problematic. It overlies the South Rings and its supposed 'strategic' position coupled with a Roman military apron fitting found nearby prompted the suggestion (e.g. Jones, Evison and Myres 1968, 215, Jones 1973, 11) that this ~~was~~ **might be** a Roman military earthwork. The rectangular shape (85 × 55 m) and its deep (2.3 m) V-shaped ditch was suggestive.

Post excavation work on the pottery and site records suggest it ~~is~~ **may have been** considerably earlier. The enclosure was **perhaps** first laid out in the middle to late Iron Age. Pottery of this date is found in the primary fill. Over this lies a charcoal-rich late fill containing 'Belgic' and late Roman pottery (in especially the north and west sides; the south side was only 'salvaged') and cut into this ~~were~~ **was** an early Roman kiln~~s~~ and an oven **and a corndrier**. The feature was not totally excavated most of the late fill was 'salvaged', the~~n~~ primary fill was not extensively excavated. It should be noted that in plan this enclosure fits better with the Belgic enclosures than it does with the Roman field system.

More problematic are two other elements of what used to be regarded as the Roman field system, another large sub-rectangular enclosure ('RBII') also contained Belgic/early Roman pottery and has a small kiln (No) cut into its fill. Similarly 'RBIII' attached to the side of RBI may have also had an origin at about the same time. RBII and RBIII may be **pre or** post-conquest.

Early Iron Age

As outlined above, on first impression Mucking's Early Iron Age seemed something of an enigma.[5] There were few explicit references to the period in the paper archive, and the recovered MPX files list a total of only a hundred (pottery) spot-dated pits and postholes (22 of which were also assigned to the Late Bronze Age elsewhere in the catalogue). Set against the terrace's abundant evidence for Late Bronze Age and Middle/later Iron Age settlement, the overwhelming impression from the archive was that activity declined at Mucking during the Early Iron Age (Fig. 4.3). This is not in itself a problem, and could simply suggest that settlement shifted off-site. Indeed, there is ample evidence for earlier Iron Age occupation at the adjacent site at Linford (Barton 1962), with traces of settlement also recorded in the surrounding landscape at Orsett (Buckley & Hedges 1987), Baker Street (Wilkinson 1988), Rectory Road (Wilkinson 1988), Rainbow Wood (Potter 1974), and to a lesser extent, Gun Hill (Drury & Rodwell 1973). Clearly, there can be no *de facto* argument that settlement was any less plentiful in the surrounding landscape than during the Late Bronze Age.

Only 4% of the site's pits of generally prehistoric or Late Iron Age/Roman transition date had been assigned to the Early Iron Age. These generally contained two fills, with eight including clay deposits – 'clay pits' (see Chap. 3, above) – and had steep or near-vertical sides and concave or flat bases. These Early Iron Age pits ranged in size from *c.* 0.7m to 1.9m in diameter (ave. *c.* 1.15m) and were 0.1–0.6m deep (ave. *c.* 0.3m); these dimensions being slightly larger than the pits attributed to the Late Bronze Age, and with no apparent clustering. Of these features, two pits within each of the northern and southern areas of the site had multiple sherds (2340N × 730E, 1763N × 857E, -62N × 264E, -241N × 316E); four pits had fired clay fragments, and one contained tooth fragments from horse and cattle (-200N × 335E).

Despite these findings, as outlined above there was still considerable unease with how little of the period's archaeology had been recognised. Given this, and how successfully the MPX-drawn pottery archive had been employed to elucidate the terrace's Late Bronze Age traces, we decided to repeat the exercise for its Early Iron Age wares. This proved equally successful. A number of major pottery groups were identified by Brudenell (see below) and this resulted in a significant expansion of the period's distributions, particularly in the north of the site and within the area of the North Enclosure. In fact, as is apparent on Figure 4.6, the distribution of Early Iron Age activity along the eastern half of the terrace was then clearly very similar to that of the Late Bronze Age (cf. Fig. 3.3), although it does not show the same high densities within the South Rings (but is higher just to the southwest) and has a more interrupted spread across the central site swathe (i.e. the area of the later Double Ditch Enclosure),

Two things should be noted on Figure 4.6. First, no material of this date is shown occurring within the site's west-centre and the later area of the Banjo complex. This is in contrast to the number of features attributed to that swathe during MPX (see Fig. 4.3); this, unfortunately, must remain an inexplicable discrepancy. Second, is simply to stress the extent to which haematite wares were concentrated within the vicinity of the later North Enclosure.

The demonstration of the extent of Early Iron Age activity made us reappraise whether we might have been too hasty in our Late Bronze Age assignation of the potential post-built house 'circles' within the site's northern quarter (see Figs. 3.7–8) and reconsider if some might actually be of Early Iron Age date. Indeed, this reappraisal of the scale of the terrace's

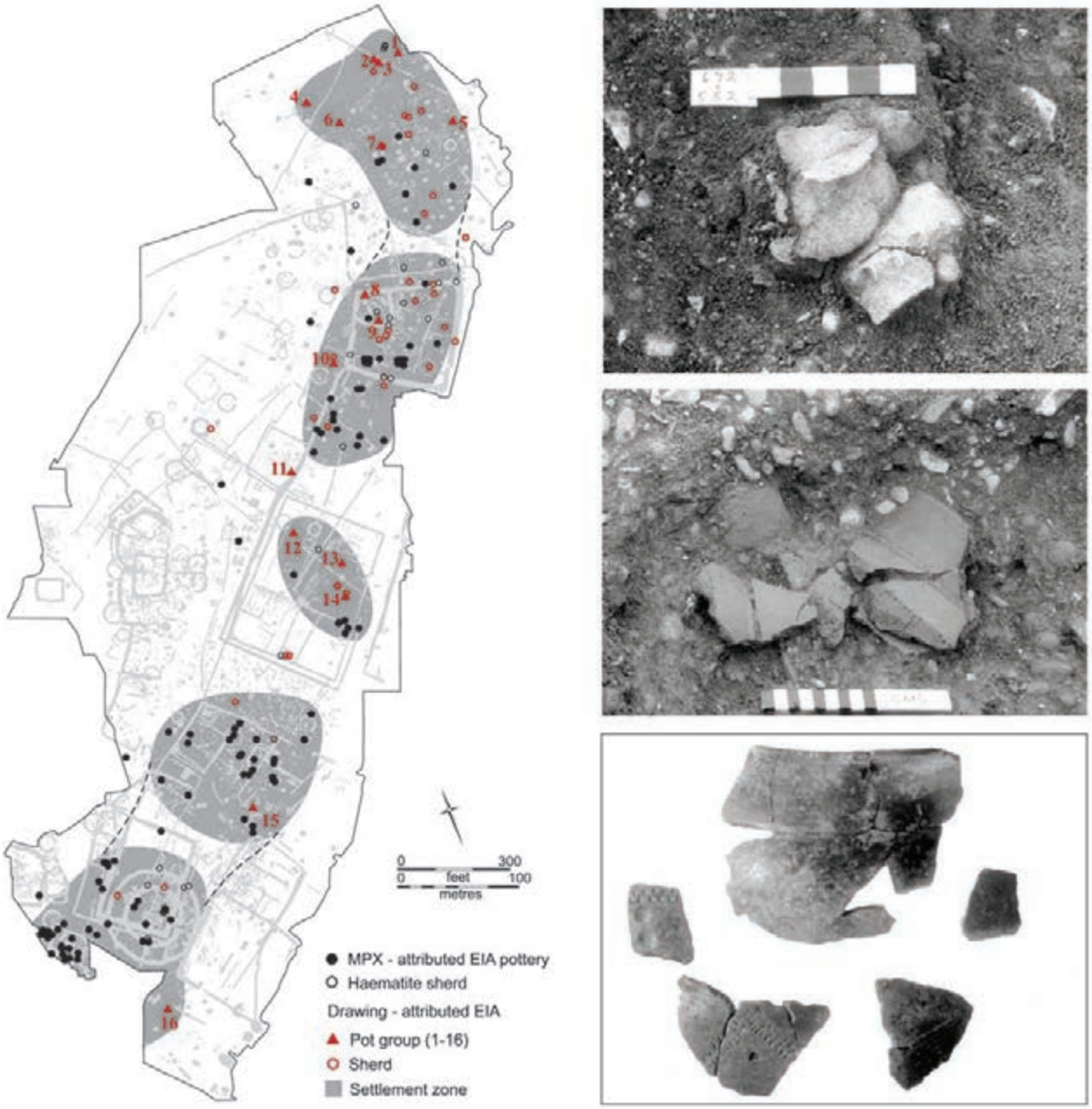


Figure 4.6. Early Iron Age Pottery: right, distributions; left top, decorated coarseware jar (672N × 552E; see Fig. 4.12); middle, decorated fineware jar from Pot Group 6 (pit [25202], 2340N × 730E); bottom, selection of 'haematite-coated' sherds.

Early Iron Age – following on that for the Late Bronze Age and the degree to which their distributions overlapped – led to the realisation that, on practical grounds, it was unfeasible to attempt to distinguish their post-built structures in date (both roundhouses and 'posters'). At the same time, this also led to the recognition of just how much of their such 'shared' remains must remain undistinguished amid the myriad unphased postholes. Accordingly, it was at this point that we began to identify further possible 'partial' post-built roundhouses on the site's base-plans. Further outlined in the section that follows, their attribution carries a high degree of ambiguity and is why they are not formally designated within gazetteers. As indicated on Figure 4.24, as well as on various base-plans, altogether 37 such locations have been highlighted, having post-circles generally 5–7.0m in diameter. This includes six that appear to have directly underlain later, gullied buildings, as well as the 11 that have already been described in the Later Bronze Age chapter above; the dating of any of these being very uncertain (see *Roundhouses*, below, especially concerning RH47's status).

Partially drawing upon Mucking's data, in 1978

Drury overviewed the region's Early Iron Age buildings. While recognising that the evidence was then still meagre, he defined such un-ditched post-circle settings as these as constituting the period's main building-type (though, based on the few exposures to date, he remarked that they tended to be ovoid rather than circular; Drury 1978a, 45–8, figs. 2 & 3). Although this morphology still largely holds true for the region's buildings of that date, there are exceptions and these are discussed below (see *Roundhouses*).

At this point we must further complicate matters. Throughout the current programme there was lingering dissatisfaction concerning the status of Roundhouse 39. In the course of MPX this was thought to be Late Bronze Age, but Brudenell's subsequent spot-dating indicated that it was actually Early Iron Age.

Structure RH39 (680N × 450E; Figs. 4.8–9 & 4.84) – A partially exposed narrow gully, 0.36–0.48m wide, with postholes arranged along and cutting the gully; internal diameter 14.15m; with a southwest-facing entrance, 2.9m wide; a porch/entrance denoted by four postholes suggests this was a large roundhouse. Fifteen postholes, two pits (672N × 448E; 678N × 453E), a clay pit (689N × 457E) and three (later) cremations were found within this circuit of this structure. A minimum of 133 sherds was recovered (see Fig. 4.10).

As outlined in the previous chapter, during MPX there was some doubt as to whether this was, in fact, a building, as opposed to a barrow. This was due to both its size and to the fact that three cremations occurred within its interior; these, however, are likely to be later and are duly described in Cemetery V's text below. Moreover, as is clear in the transcribed notebook entry that follows (No. 98, 42–3), its excavators were certain that it was a building. Figure 4.9 includes Notebook 98's comparative reconstruction sketches of Little Woodbury and West Harling, which demonstrate an awareness of 'classic' Iron Age sites and round building forms.

> Traces of the habitation are relatively slight. Perhaps two thirds of the perimeter are fairly well defined as soilmarks, but few internal features are obviously postholes rather than hearth pits.
>
> Making the assumption that this is an Iron Age – even if very late Homestead – rather than an animal pen of some sort, and bearing in mind its diameter – about 50 feet – one can see two main possible constructional types for the building: one a totally enclosed cone-roofed hut, the other a circular aisle type building with an open centre.
>
> That is:
>
> A) [Ill. of roundhouse]
> As for instance Little Woodbury;
>
> *or*
>
> B) [Ill. of aisled roundhouse]
> As for instance East Harling
>
> Type A) However demands massive central postholes, up to four in number; again if there a central smoke hole, the position of the hearth would vary little.
>
> In the circle there are two or three hearth pits, but no massive central postholes. One might, therefore suspect a less substantial building of peripheral aisle variety.
>
> Walling: Excavation shows a wall pattern of postholes every two to four feet (represented by dk loam fills), between which little postholes (loam patches *c.* 1″ across) are sometimes noticeable; in places a shallow gulley links postholes, filled with a very gritty brown fill.
>
> The massive postholes arrangement on the south suggests an Entrance, but the posthole pattern is not as complete on the East side of this as on the West.

The attribution of one of the site's wall-trench-built roundhouses to the Early Iron Age duly raises the question how many of the other buildings of this type might also be of such early date. Here, we must guard against pre-empting arguments and data appropriately presented in *The Structures* section that follows (where detailed entries for all the enumerated buildings discussed below can be found in the *Roundhouse Gazetteer*). This issue, nonetheless, is crucial and some repetition is justified. There are no grounds for assigning all of the site's wall-trench (-only) buildings to this period (Category D; see below). Some 13.6m across and located within the North Enclosure (Fig. 4.46), Roundhouse 89 presents a prime case in point, as it is firmly dated to the 'later' Middle Iron Age (by Brudenell; see below concerning his *vs.* MPX-dated buildings). Yet, close inspection of its plan indicates that it varied in a key respect from the other potentially earlier building settings; primarily, that its entranceway was marked by large postholes whose elongated insertion-pits directly conjoined with its wall-trench (Fig. 4.20).

Other buildings, comparable to Roundhouse 39, lay within the same part of the site. Two prime candidates are shown on Figure 4.9. Roundhouse 40 consisted of a 10.9m-diameter wall-trench with either a southwestern or southwards entranceway. Approximately 1.1–1.2m inside of its wall-line was a ring of large, regularly spaced postholes. Along its northern and eastern aspects, the structure's wall-line had apparently been re-cut by some manner of irregularly 'half-circle' gully, probably an eavesgully. Indeed, it was this – plus the occurrence of an Anglo-Saxon grave within its interior – which prompted speculation that it, too, may have been a barrow. While 'officially undated', aside from some Roman material in the gully fill, only flint-gritted pottery was recovered from its postholes (Hirst & Clark 2009, 453). Based on this and its similarity to Roundhouse 39 nearby, it is reasonable to also assign this structure's

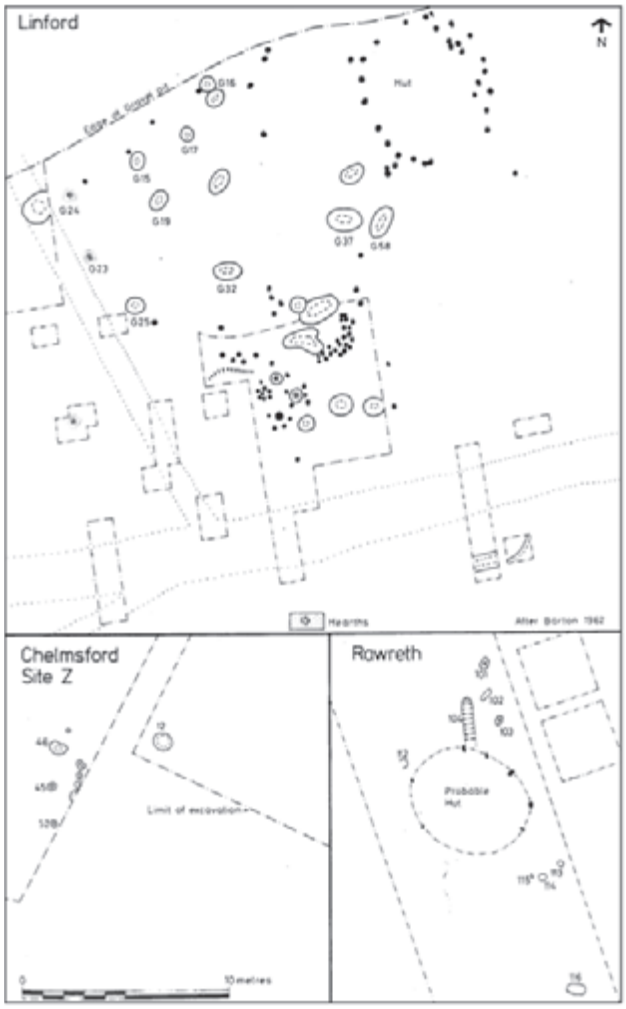


Figure 4.7. Essex Early Iron Age roundhouses (after Drury 1978a, fig. 2).

posthole-and-wall-trench layout to the Early Iron Age. The same would also be true of Roundhouse 22 that lay where RBI was later established. Unfortunately also undated, this comprised two successive wall-trench arcs, *c.* 9.5 and 10.5m in diameter. That these only survived along the southern and eastern sides of their projected 'circles' suggests that their entranceways also lay in the southwestern sector.

The same doorway orientation might also be apparent in the plan of Roundhouse 113 (Fig. 4.8). Together with Roundhouse 112 (which seems to mirror its arc and may represent a direct rebuilding), this proposed wall-trench building (largely un-excavated and, thereby, undated) lay *c.* 20m in front of Roundhouse 39 and may even have been 'paired' with it.

As further discussed below, a possible southward-opening wall-trench length can also be distinguished within the northern interior of Roundhouse 1 in the area of the ABC Enclosures (see Fig. 4.24).

One or more buildings of this type/date might well be sought in the Roundhouse 6–8 series (in the space later occupied by RBI). Depicted on site plans as variously straddling or truncated by the South Rings' inner circuit (cf. Figs. 3.11 & 4.40), these do not seem to have been carefully excavated and their relative sequence was not firmly established. Only one, Roundhouse 8, was MPX-dated: 'later Bronze Age'. Yet, given its 'type' – with a post-set porch marking its southeastern entranceway – this seems unlikely and a (?earlier) Middle Iron Age date would be more probable. While plans of Roundhouse 7 show such variability that it is impossible to attribute its 11.0m-diameter 'arc', both it and the partial circle of Roundhouse 6 – possibly having a southern entrance and *c.* 8.3m in diameter – may well have been of 'Early' date.

Relative building-secession may also aid us in determining whether there are any other buildings of this type (especially given the problems of having to rely upon MPX-attributions alone). In the case of Roundhouses 50/51 within the Banjo-area (Fig. 4.59), the 12 sherds recovered from Roundhouse 50's wall-trench were assigned to the Early Iron Age by MPX, and the almost 100 sherds recovered from Roundhouse 51 – the large eavesgully building that apparently replaced it (Fig. 4.18) – were attributed (by Brudenell) to the 'earlier' Middle Iron Age. The same is also true of Roundhouse 98 located within the footprint of the North Enclosure (Fig. 4.46). Similarly dated by MPX to the Late Bronze/Early Iron Age, it appeared to have been directly superseded by the large eavesgully-set building, Roundhouse 97 (Fig. 4.21), whose assemblage of nearly 550 sherds was also assigned by Brudenell to the 'earlier' Middle Iron Age, making an Early Iron Age assignation for Roundhouse 98 reasonable. Also falling within the same North Enclosure footprint-area was the re-cut, half-surviving arc of Roundhouse 91. With a southeast-facing entrance, its wall-line was 15.8m across; in the course of MPX it was broadly dated as Late Bronze Age to Middle Iron Age.

Other such undated wall-trench building 'fragments' – for example, Roundhouses 48 and 115 in the Banjo-area – could also be posited as 'Early', but with less conviction. It is possible that these large, wall-trench-type Early Iron Age roundhouses may mark a local house-construction development or tradition. As such, they might perhaps be thought of as 'later' Early Iron Age in date and as superseding 'earlier' post-circle-only buildings (though, there would be nothing to say that the two types could not co-exist). If so, they could attest to a development of building type, but one which did not correlate to any obvious change in ceramics; of course, there is no reason whatsoever that these two 'rhythms' need have been interrelated.

Figure 4.8. Site south-centre base-plan, with Early Iron Age wall-trench buildings and, also, possible post-circle roundhouses indicated.

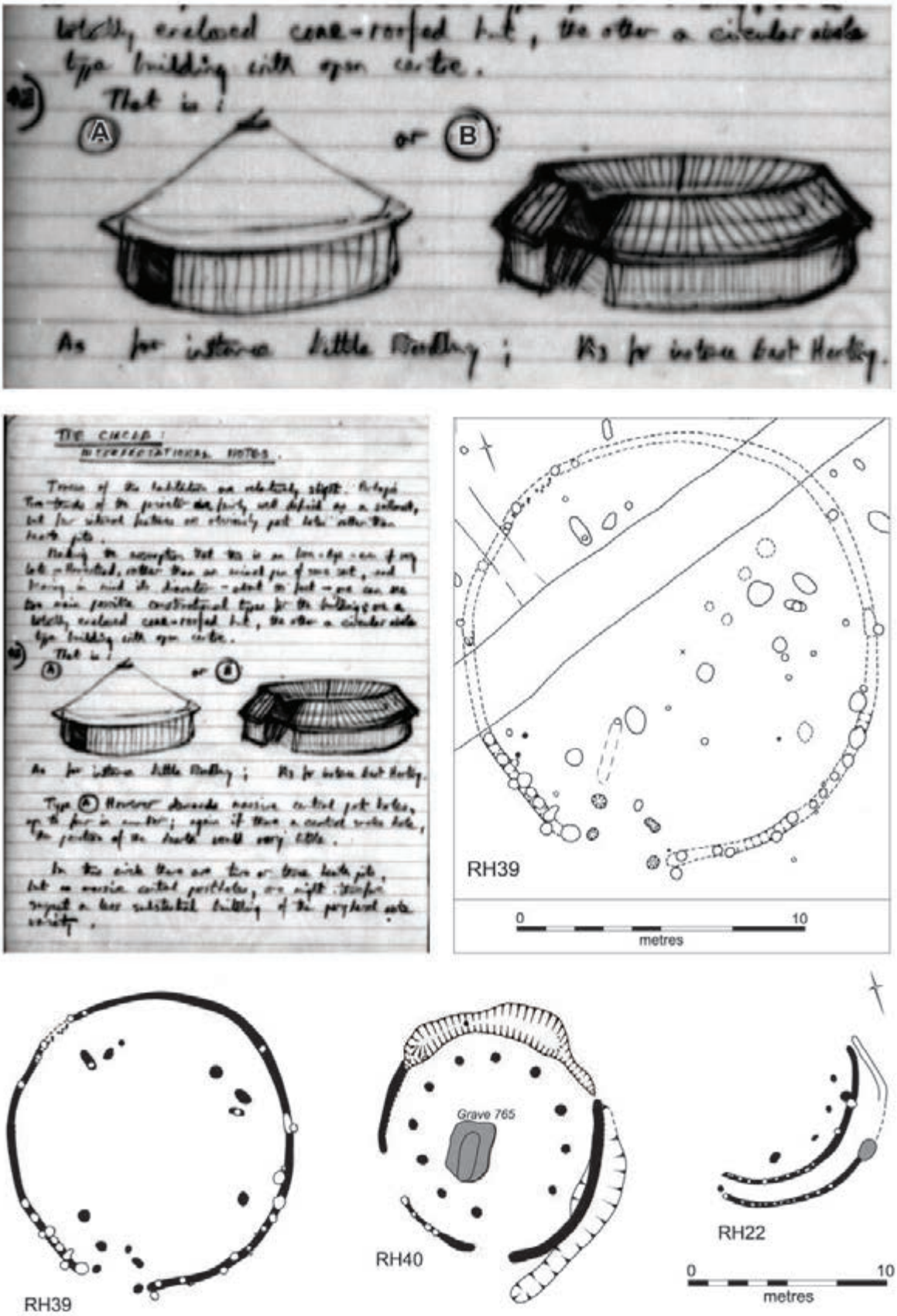


Figure 4.9. Roundhouse 39: gazetteer plan and notebook sketches; bottom, large wall-trench roundhouses (RHs 22, 39 & 40).

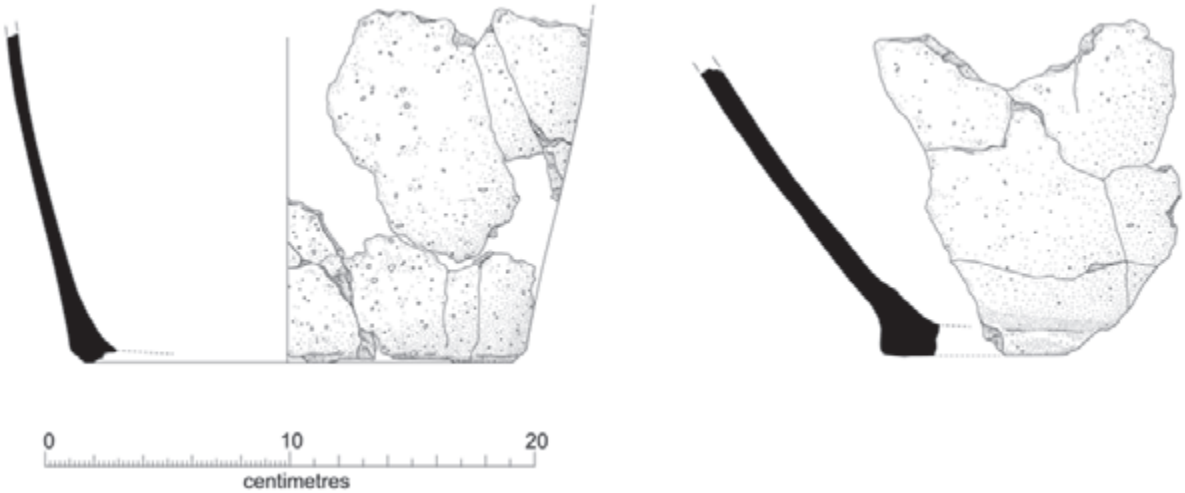


Figure 4.10. Roundhouse 39 pottery; as reported by Brudenell, the structure yielded a small assemblage of pottery, which included the base and lower walls of two flint- and sand-tempered jars (illustrated) and a handful of other body sherds in similar fabrics. Although none of the sherds were especially diagnostic, the character of the fabrics implies an Early Iron Age date.

The site's Early Iron Age settlement as a whole can be considered 'open'. Involving various roundhouses, pits and posthole settings – with some of the site's four-posters surely also being of this attribution – no ditch systems were apparently associated, as is common to most settlements of this date.

Pottery Matt Brudenell

One key issue was whether the scarcity of archival records for the Early Iron Age at Mucking reflected a marked decline in the scale of site's occupation. Was this a genuine feature of the site sequence, or was the paucity of evidence simply a product how the pottery was spot-dated? Suspicions were first aroused by a survey of the prehistoric pottery illustrations, which seemed to show a disproportionate number of angular and profusely decorated jars and bowls appropriate to the Early Iron Age. In an attempt to assess the dating by MPX, these drawings were re-spot-dated, and then compared to the MPX originals. Whilst acknowledging the dangers of re-dating ceramics from drawings, this exercise provided an independent means of source-interrogation without actually returning to the material itself (which at the time of writing was in deep storage).

The results were intriguing. Firstly, it was clear that many of the Early Iron Age vessels re-spot-dated from the illustrations were absent from the MPX data files. In fact, the re-dating of the illustrated material added a further 20 Early Iron Age features/coordinate points to the MPX lists (most of which relate to pits and postholes). Secondly, pottery from 19 features/coordinate points were re-dated from the Late Bronze Age to the Early Iron Age. On a more positive note, there were 11 instances in which the re-dating was in agreement with MPX.

The broader significance of these results is difficult to interpret, not least because the illustrated material reflects a tiny fraction of what was recovered and originally dated. Still, it is clear that the MPX Early Iron Age catalogue is incomplete, though it is impossible to judge just how much is missing (interestingly, when a similar exercise was conducted for the Late Bronze Age, the spot-dating of the illustrations added nothing new to the MPX catalogue; see Chap. 3). Of more immediate concern is the finding that some of the pottery, now spot-dated to the Early Iron Age, was originally assigned to the Late Bronze Age in MPX. This should not be read as a criticism of the MPX-phasing. Indeed, until relatively recently, much of this *Decorated Ware* PDR pottery would still have been considered Late Bronze Age in origin. However, the conventional chronology of PDR ceramic phases has been revised by the back-dating of Late Bronze Age metalworking assemblages (Needham *et al*. 1997). As a consequence, the currency of the *Plainware Phase* is now thought to be coeval with the Late Bronze Age (defined by the currency of the Wilburton/Ewart Park metalwork complex), and is dated *c.* 1150–800 BC, whereas the main *floruit* of the *Decorated Phase* is believed to post-date *c.* 800 BC, and is aligned upon the Early Iron Age (Needham 2007).

The implication is that there is much *more* Early Iron Age activity at Mucking than is otherwise indicated by the MPX archive and, by extension, there is arguably *less* for the Late Bronze Age. Whether or not we are dealing with reduced levels of activity at Mucking post-800 BC is still difficult to gauge. However, if it is accepted that most of the pottery

from the upper fills of the South Rings dates to the Bronze Age–Iron Age transition (*c.* 850–750 BC), if not the Earliest Iron Age proper (*c.* 800–600/550 BC), then this scenario seems far less likely. Judging by the illustrations, *there are certainly grounds for suggesting a settlement presence throughout the Early Iron Age period*.

Pottery which may be considered Earliest Iron Age in origin includes the series of tripartite bowls depicted with incised decoration and dimples below the shoulder, together with angular jars bearing multiple zones of finger-tipping, tooling or grooved geometric motifs (Fig. 4.11, Groups 4–6, 11 & 15). Many of these are paralleled by the ceramics from Fengate (Hawkes & Fell 1945) and West Harling (Clark & Fell 1953), specifically the vessels in Figure 4.11, Groups 5 and 15 (No. 6), as well as Numbers 11, 13, 14 and 23 in Figure 4.12. These would fit comfortably within Cunliffe's West Harling-Fengate style-group (Cunliffe 2005, 94–6). At a more local level, the tripartite jar with long dotted-triangles and incised lines (Fig. 4.11, Group 6, No. 1) is very similar to a published vessel from North Shoebury (Brown 1991), and demonstrates the stylistic connections along the Thames Estuary in the Earliest Iron Age.

Pottery which may be dated to the Early Iron Age proper (*c.* 600–350 BC) includes the tripartite bowls with flared necks (Fig. 4.12, Nos. 18 & 26). Most of the illustrated examples are plain, though two have horizontal grooving between the base of the neck and the shoulder (Fig. 4.11, Group 14, No. 2 and Fig. 4.12, No. 16). These are Darmsden-Linton-type bowls, which can be widely paralleled in Early Iron Age assemblages in Essex; for example, Lofts Farm (Brown 1988b), Maldon Beacon Green (Bedwin 1992), Stansted (Havis & Brooks 2004) and Slough House Farm (Wallis & Waughman 1998). That being said, such vessels do not appear to have been common at Mucking, nor at North Shoebury (Wymer & Brown 1995, 87). In fact, these highly distinctive decorated bowls are comparatively rare in South Essex and, as far as one can tell from the illustrations, are absent from the published assemblages from Orsett (Hedges & Buckley 1978), Barker Street (Wilkinson 1988), Fox Hall Farm (Ecclestone 1995) and Rainbow Wood (Potter 1974). It is even doubtful whether the decorated bowl from Linford should be considered Darmsden-Linton; its concave neck, high line of decoration and relatively deep omphalos base being quite unlike the 'classic' Darmsden-Linton bowls (Barton 1962, fig. I, no. 5).

In short, the weight of evidence suggests that plain bowls were the norm in the Early Iron Age in South Essex. The jars, by contrast, continued to be regularly adorned with finger-tipping on the rim, neck and/or shoulder. This is also significant since in other parts of Essex decoration becomes more intermittent on Early Iron Age jars (most jars from Lofts Farm, Stansted and Maldon Beacon Green are plain, for instance). There are, therefore, hints of intra-regional differences in potting traditions in Essex, which warns against the blanket use of the term 'Darmsden-Linton' when describing the county's Early Iron Age ceramics.

Other pots worthy of note include the 39 illustrated 'haematite-coated' sherds/vessels (Fig. 4.13), 20 of which carry grooved, incised and/or tooled decoration, with some forming complex geometric patterns. The incised chevron motifs on Numbers 2 and 32 recall the decoration on Early Iron Age sherds from pit F.405 at Slough House Farm, which also yielded haematite-coated wares (Wallis & Waughman 1998, 134, fig. 96, nos. 43–44). In general, this red finished pottery is rare in Essex, with most large assemblages yielding only a few sherds. These are unlikely to be any more common at Mucking, meaning that their numbers in the illustrated catalogue reflect something of the scale of the Early Iron Age assemblage, rather than any significant 'concentration' on the site. Some of these sherds were possibly imports. However, patches of a hematite coat were identified on an Early Iron Age shelly vessel at North Shoebury (Wymer & Brown 1995, 87, fig. 68, no. 132) suggesting that local potters, on rare occasions, also produced wares with this finish.

Other 'exotic' or unusual elements in the assemblage include a jar whose body is completely decorated with grooved diagonal and vertical lines (Fig. 4.11, Group 13, No. 1). It is unclear whether the vessel was originally handled, as the drawing seems to depict sub-square knobs on its wall. This detail aside, the pots cannot be currently paralleled in Essex, or elsewhere in eastern England. Another vessel of note is the tripartite jar with pedestal base (Fig. 4.11, Group 16, No. 2). Its form recalls the carinated jars of the Champagne region illustrated in the Morel collection (Stead & Rigby 1999, fig. 19). Although these vessels have a currency between Hallstatt C/D and La Tène I, they are described as being most common in the burials of Champagne between the mid fifth and mid fourth century BC (*ibid.*, 39). A date within this bracket is probably appropriate for the Mucking vessel, though whether this example was an import or local copy is impossible to say. What is perhaps more surprising is the absence of other illustrated vessels with clear Continental affinities. There are not, for instance, any of the polychrome painted decorated sherds identified at Highstead (Bennett *et al*. 2007, 154, fig. 89, no. 368), or elsewhere in Kent. Nor is there any reference to, or illustration of, vessels with rusticated (*eclabousée*) surfaces – a treatment also common to the Period 3 ceramics at Highstead (*ibid.*). Certainly, given Mucking's location, one might have expected more parallels with the Early Iron Age ceramics of Kent, especially since there are clear stylistic connections in the Late Bronze Age (i.e. the use of horizontal

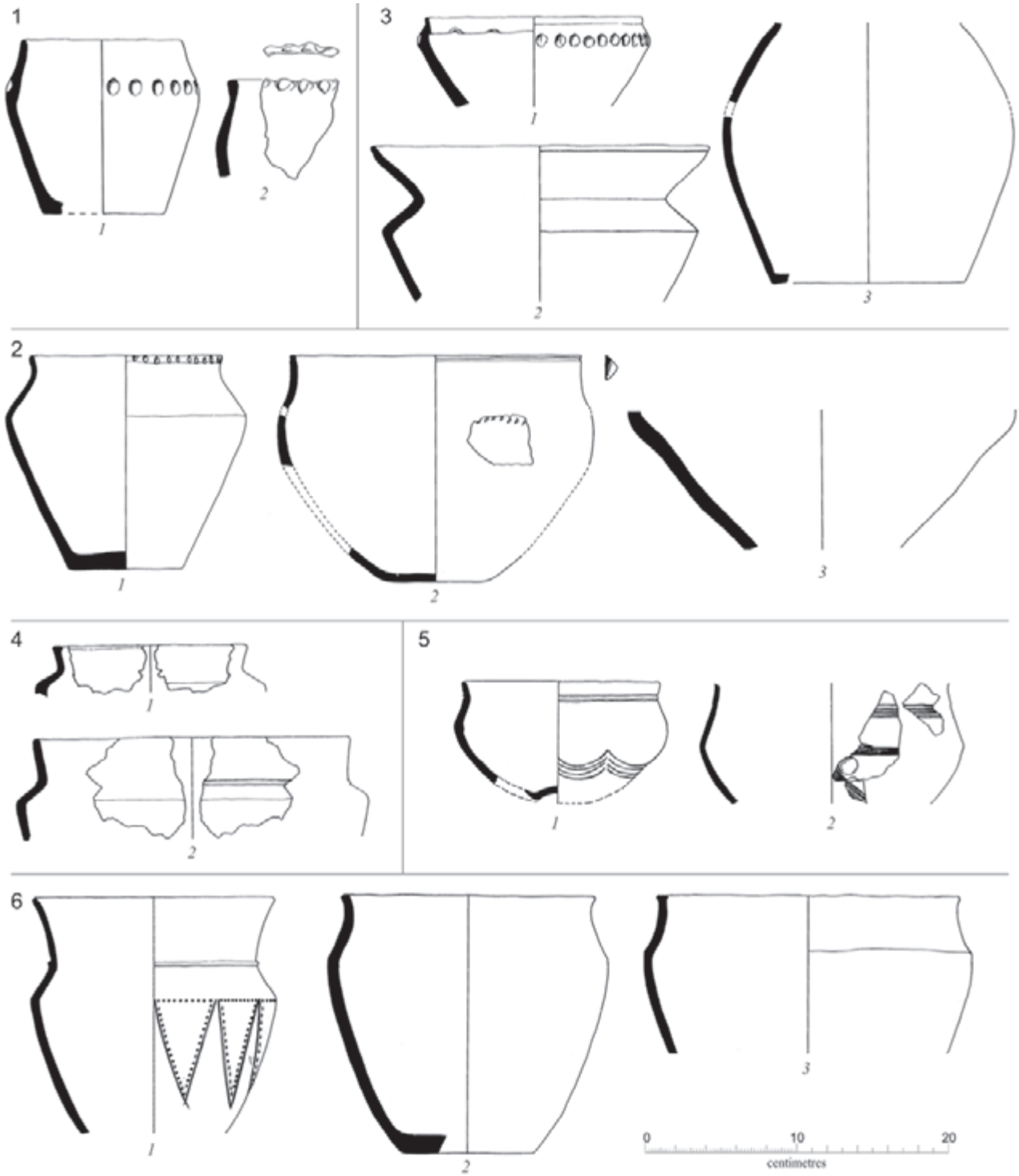


Figure 4.11. (continued over the next two pages) Early Iron Age pottery groups (1–16).

combing on fineware bowls) and Middle/later Iron Age potting traditions (i.e. 'S'-profiled foot-ring pots, and Mucking-Crayford style vessels).

Pottery Groups

The 16 'pot groups' briefly described below comprise those features where more than one vessel was illustrated (labelled 1–16, with site coordinates and BM contexting; Fig. 4.11, see Fig. 4.6 for location). As with the Late Bronze Age pot groups, many of these would now be recognised as 'formal deposits'.

1) 2528N × 890E ([25844]) – Group comprising fragments of two decorated coarseware jars recovered from a shallow pit (*c.* 0.8m wide by 0.3m deep). Notebook entries suggest the pit yielded *c.* 70 sherds.

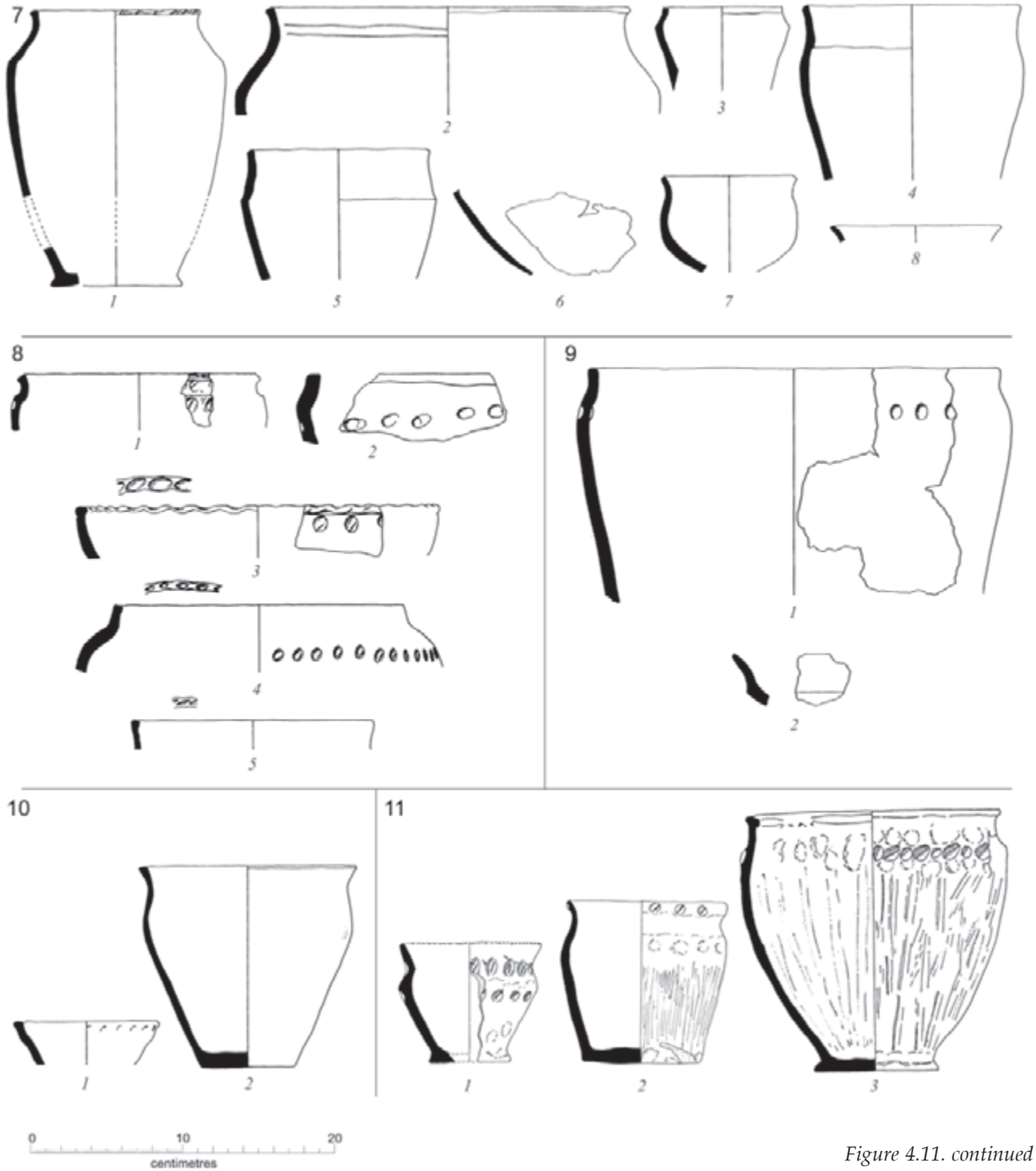


Figure 4.11. continued

2) 2506N × 839E ([25874]) – Fragments of four flint-tempered vessels (three illustrated) recovered from a posthole (*c.* 0.3m wide, 0.2m deep). The group includes the complete profile of a tripartite coarseware jar with fingertip-decorated rim-exterior, and a burnished fineware vessel with tool-impressed shoulder. (Notes on the mock-up illustrations indicated that sherds refit with pottery from pit/posthole 2500N × 835E, [25876].)

3) 2500N × 835E ([25876]) – Parts of a minimum of four (three illustrated) vessels included a fingertip-decorated coarseware bowl, a burnished fineware tripartite jar with flared neck, and the body and base of a jar. The notebook entries describe the features as a 'ramped pit' (*c.* 0.6m wide, 0.4m deep), though the section resembles a posthole dug out for the remove of an upright. The pottery was found in a dump along

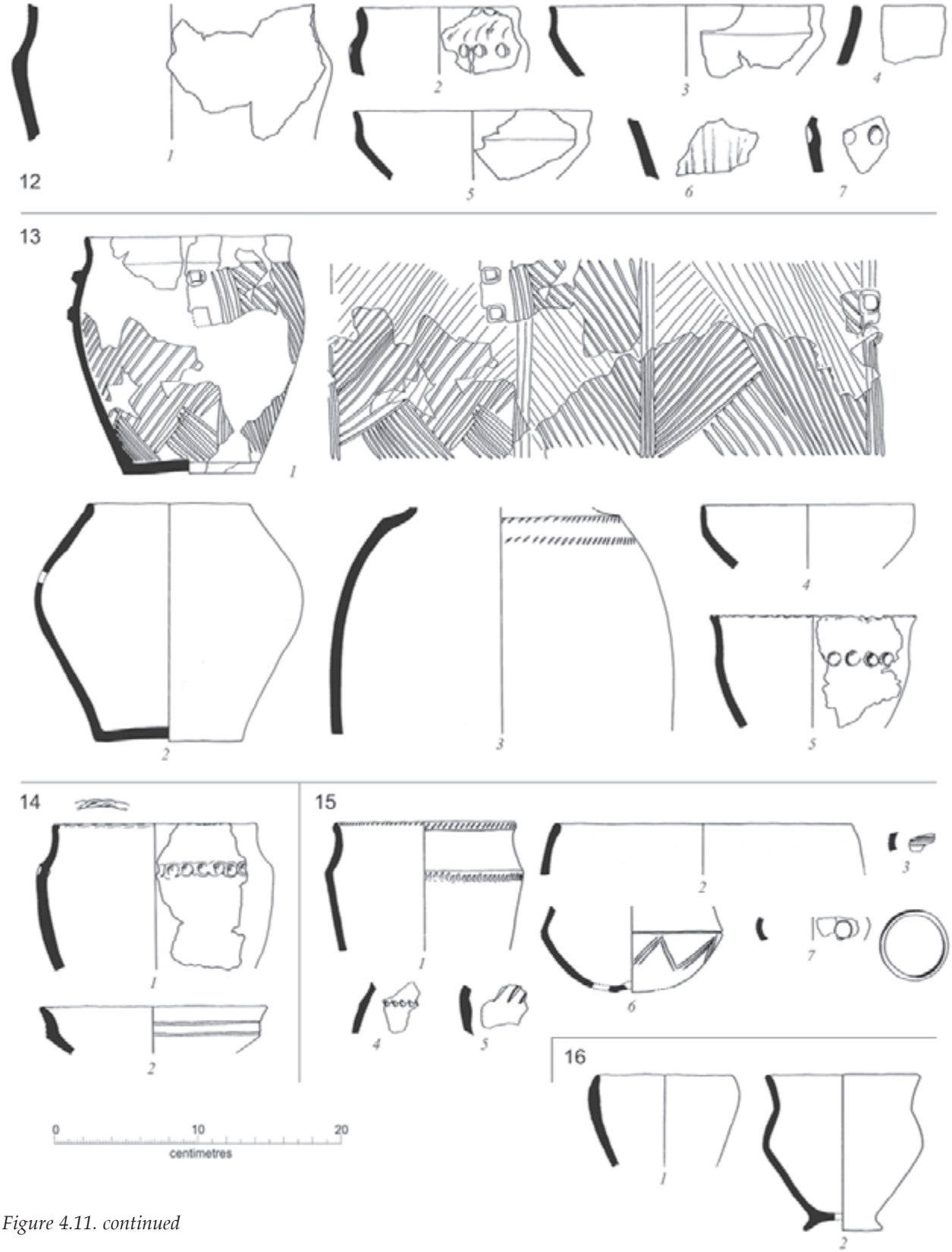


Figure 4.11. continued

the sides and base of the cut. (Notes on the mock-up illustrations indicate that sherds refit with pottery from pit 2506N × 839E, [25874].)

4) 2395N × 649E ([25196]) – Fragments of two flint-tempered tripartite jars recovered from a shallow pit (*c.* 0.4m wide, 0.1m deep); one with horizontal grooved lines at the base of the neck. Notebook entries describe the fragments as being 'upstanding' in the centre of the pit.

Figure 4.12. (continued opposite) Other Early Iron Age illustrated vessels: 1) 1628N × 852E; 2) 672N × 552E; 3) 1678N × 977E; 4) 1785N × 1018E; 5) 2438N × 933E; 6) 2029N × 1074E; 7) 2093N × 964E; 8) 1779N × 857E; 9) 1752N × 840E; 10) 1903N × 985E; 11) 2142N × 984E, with two post-firing perforated holes in base; 12) 1877N × 987E; 13) 770N × 447E; 14) 899N × 595E; 15) 270N × 255E; 16) 1856N × 936E; 17) 2511N × 824E; 18) 1084N × 728E; 19) 2478N × 822E; 20) 1705N × 714E; 21) 1540N × 661E; 22) 2275N × 848E; 23) 1763N × 857E; 24) 1510N × 380E; 25) 245N × 125E; 26) 1065N × 751E; 27) 1909N × 923E; 28) 2358N × 908E.

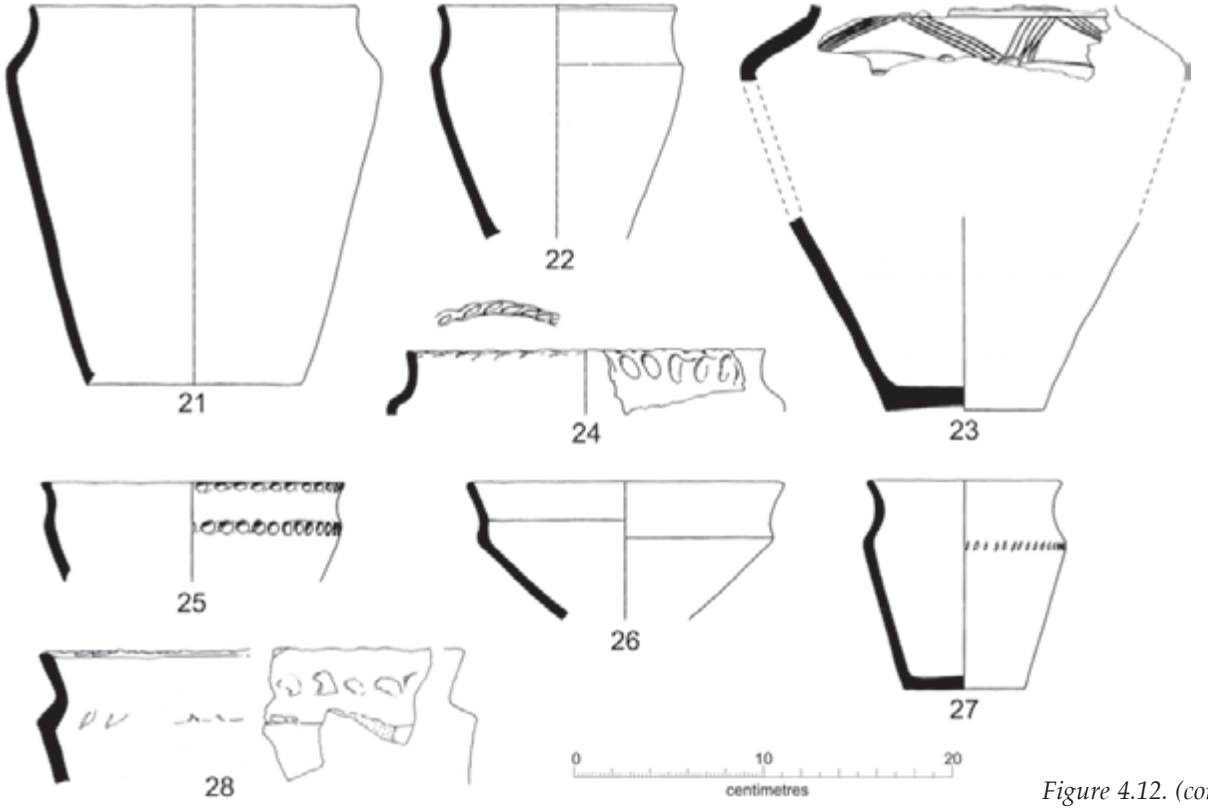


Figure 4.12. (continued

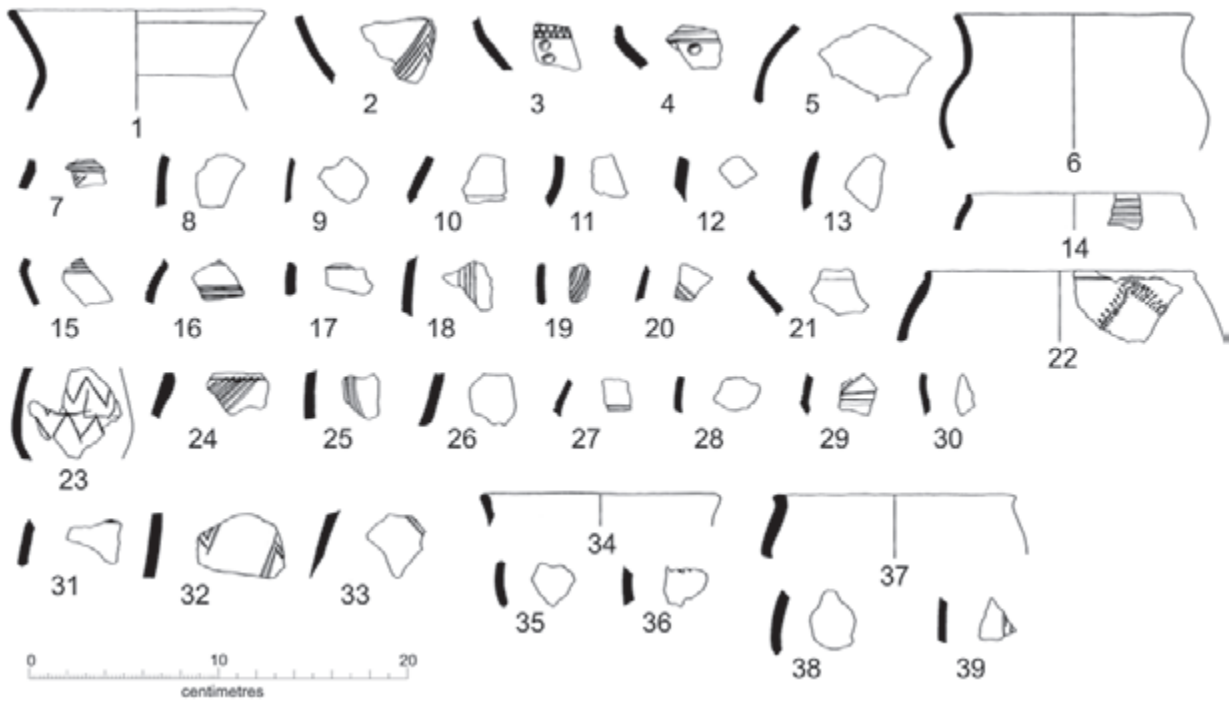


Figure 4.13. Early Iron Age 'haematite-coated' pottery: 1) 2308N × 918E; 2) 204N × 257E; 3) 2371N × 952E; 4) 2357N × 918E; 5) 1182N × 672E; 6) 672N × 552; 7) 203N × 256E; 8) 205N × 255E; 9) 897N × 570E; 10) 268N × 306E; 11) 1462N × 739E; 12) 1646N × 870E; 13) 275N × 208E; 14) 1807N × 871E; 15) 1650N × 852E; 16) 710N × 760E; 17) 200N × 250E; 18) 130N210E; 19) 1791N × 864E; 20) 1810N × 866E; 21) 1827N × 832E; 22) 1851N × 907E; 23) 2257N × 967E; 24) 1910N × 1051E; 25) 274N × 320E; 26) 2541N × 850E; 27) 1906N × 1000E; 28) 1948N × 906E; 29) 2116N × 775E; 30) 1961N × 1010E; 31) 2549N × 855E; 32–33) 2546N × 855E; 34–39) 320N × 240E.

5) 2341N × 1038E – Fragments of two decorated fineware bowls. Notes on the mock-up illustrations describe the bowl with the omphalos base as haematite-coated with fine flint tempering. The vessel has two grooved horizontal lines at the base of the neck, and combed arcs on the belly. The second bowl is also described as finely flint gritted with combed decoration and dimples. Both can be broadly paralleled with published bowls from Fengate (Hawkes & Fell 1945). They were recovered from a pit/small posthole (*c.* 0.5m wide, 0.1m deep).
6) 2340N × 730E ([25202]) – Group of three semi-complete jars, including a burnished, highly decorated tripartite fineware jar with flared neck. The jar has a neck cordon and punched-dot defined triangles on the body backed by incised lines. The vessel's closest parallel is from North Shoebury (Brown 1991).
7) 2278N × 843E ([25485]) – Group containing fragments of eight vessels, including a range of marked shouldered coarseware jars, and parts of three burnished fineware bowls: all in flint-tempered fabrics. Only one of the jars is decorated, with fingertipping along the rim-exterior. The assemblage is possibly earliest Iron Age in origin, though a Late Bronze Age date cannot be ruled out. Notebook entries suggest that lime-scale was present on the interior of the largest jar.
8) 1872N × 802E – Fragments of five decorated coarseware jars.
9) 1806N × 839E ([10932]) – Fragments of a fingertip-decorated coarseware jar and a flared bowl.
10) 1692N × 716E ([11559]) – Group comprising the complete profile of a shouldered jar with slightly flared neck, and a small open-profiled bowl.
11) 1397N × 597E ([4084]) – Complete profile of three decorated coarseware jars, recovered from a large shallow pit. Notes accompanying the mock-up illustrations indicate that the smaller jars were flint-tempered, whilst the large vessels contained grog. The notebook entries suggested fragments of several other vessels were also recovered.
12) 1229N × 602E ([15078]) – Group contains fragments of a minimum of seven vessels, including two angular shouldered bowls with hollowed necks, and a small jar with fingertip impressions on rim-exterior and shoulder.
13) 1143N × 737E ([6512]) – Substantial parts of five flint-tempered vessels, including three decorated jars, a plain bipartite bowl, and a plain bipartite jar. The decorated vessels include a jar whose body is completely covered with grooved diagonal and vertical lines. Notebook entries suggest pottery was found in a dump on the western side of the pit, with *c.* 200 sherds recovered.
14) 1057N × 747E ([15396]) – Fragments of a decorated coarseware jar and Darmsden-Linton-type fineware bowl. The pottery was recovered from a small pit/posthole (*c.* 0.5m wide, 0.2m deep).
15) 482N × 495E ([4962]) – Complete profile of a burnished flint- and vegetable-tempered angular tripartite jar with flared neck and pedestal base, and the partial profile of a flint gritted coarseware jar with slightly in-turned rim. Notebook entries suggested the tripartite jar was placed upright in the pit (0.3m deep).
16) -62N × 264E – Fragments of at least seven flint-tempered vessels including a plain burnished ellipsoid jar with a slightly in-turned rim, a tool-decorated coarseware jar with marked shoulder and concave neck, and the lower profile of a burnished fineware bowl with omphalos base, girth groove and incised chevrons on the belly. Four other decorated sherds are illustrated, including a fineware shoulder sherd with circular stamp. Notebook entities indicate the pottery was recovered from a shallow pit (0.8m long, 0.5m wide, 0.2m deep; not depicted on the *Atlas* plan).

The Structures

A gazetteer of the site's many roundhouses is followed by a discussion of those buildings; the site's 'raised granary/posters' are then outlined. One of the benefits of hindsight is that we can assume a basic understanding of the period's main

Figure 4.14. (opposite) Reconstructions: top left, David Knapp's archive drawing of the raised four-poster granary and, right, Casper Johnson's illustration of metalworking (with Margaret Jones's appended notes outlining changes required for its redrawing); bottom, Tim Potter's isometric reconstructions of Roundhouse 1 ('Hut Circle A2') and a letter by him sent to Robertson-Mackay (the site's Ministry of Works' Inspector) outlining its structure as excavated; an entry in Potter's 1965/66 notebook summarises the building's 'dissection' (i.e. excavation; Notebook 1; emphasis added; see Figs. 4.24 & 4.26 for plans and photos):

Work started on the A2 site after Christmas '65, and continued until Jan. 11th, 1966, and final work was done by MUJ and TJ before dragline destruction in June 1966. During this period, all features within the circle were *dissected* not everyone completely, and most (part) of the surrounding gullies also dissected in detail. As a corollary of this work, it was felt necessary to strip the surrounding area in detail, to see how far the posthole distribution coincided with the area of the circle. The dissection of the features within the general area of the A enclosure was not completed by TP.

During this period F. Pryor, Claire Geffs, Sasha Trow, Vivi Thomas, John Poole, Derek Stindy, Brian Sewell et al. helped with the work.

The area of the circle had been cleaned by the men, and features were showing. +A fine colour slide by TJ after rain, v. good differential drying. MUJ began to plot these features, but it was found necessary to clean down several inches to gain precise definition of features, even with the damp conditions of winter. All features, including the smallest, weathered by now, were plotted. During the winter season the definition and planning was carried [on], and towards the end of the season, some features were dissected as well as part of the entrance complex of the gullies. The main part of the dissection was carried out at Easter, when the A enclosure, and some of the gullies were also dissected. At Easter the conditions were variable. Very hot weather for a week did not help with finding features, and probably results were less satisfactory because of this.

Between Christmas and Easter 1966, TP did a certain amount of work on A2 plans, including a reconstruction (isometric). A summary of his conclusions, in the form of a letter to Robertson Mackay is included at the beginning of this notebook.

architectural components: roundhouses and raised 'poster' granaries. A feature of Iron Age sites dug in Essex in the 1970s was an emphasis upon detailed building-form reconstruction (see Drury 1978b, 118–24; Carter 1998, 120–64). That the archives include various building reconstruction drawings – Knapp's granary and Potter's Roundhouse 1 isometrics (see Fig. 4.14) – suggests that this would also have had a place in any original-format publication for Mucking. With such painstaking researches in the background, we have the privilege of now being able to take a degree of basic knowledge of building form for granted and can, instead, focus on those facets that are truly distinct.

Roundhouses

In the gazetteer that follows those structures already described in the previous chapter, which are of probable pre-Iron Age date, have been duly omitted (RHs 5, 39, 99 & 107–9). Based on the MPX-phase spot-dating others were also attributed to the Late Bronze Age, but are included here as there is significant doubt concerning their assignation (RHs 8, 36 & 106). Similar issues also occur at the other end of the period's dating spectrum. While in four instances round buildings would definitely seem to be of Romano-British date (RHs 12, 65, 71 & 111), there are a number of borderline attribution (i.e. straddling the Conquest Period) which are included here (RHs 14, 56, 58, 68, 73 & 75/76).

The illustrations used in this section were drawn to a standard scale as part of the MPX programme in 1981, with copies bound together as individual-entry A3 sheets. At that time 109 round structures were recognised in a numbered 'Roundhouse' series. Two more were added in the course of the EH/BM-phase post-excavation and we have subsequently added others. Note, however, that we have been quite conservative in such assignations and, especially across the east-central southern third of the site, there are still other 'gullied' candidates.[6]

As indicated on the main-area site base-plans (e.g. Figs. 4.8, 4.37 & 4.51; see also Fig. 4.24), a number of other suspected 'non-gullied' post-built roundhouse locations have also been tentatively identified. Based on their form, they are understood to be of possible Late Bronze/Early Iron Age date. Often consisting of little more than partial posthole 'arc' arrangements, due to their ambiguity they are not allocated formal gazetteer entries (nor do they feature in the analyses that follow). Their traces are nonetheless comparable to where round buildings of this generic 'period-type' have been distinguished on other sites (e.g. Germany 2003; Evans *et al*. 2009; Howell *et al*. 2011). Accordingly, even their qualified recognition goes far to flesh out settlement clusters of those periods, which would otherwise be based solely on pottery distributions; once again, this has been done in a 'tempered' manner and there remain other such candidates.

At this juncture we will confine ourselves to just two observations. First, in the site records it was queried whether both Roundhouses 39 and 40 might have been barrows; the status of these has been discussed at length above (see *Early Iron Age*). Second is the fact that in the course of MPX what is now termed Roundhouse 110 – the great building set within the North Enclosure's separately ditched northwestern sub-compound – was, for whatever reason, not designated as such; it was, though, during the BM/EH-phase.

For the purposes of initial analyses, five main categories have been designated:

A) Post-built round structures without any accompanying gully
B) Small specialist-function gully structures
C) 'Gully' settings
D) Wall-trench (-only) buildings, without accompanying eavesgullies
E) Eavesgullied buildings, occurring both with and without wall-trenches.

Aside from Category A, there is considerable potential overlap between these designations and the attribution of some structures is invariably ambiguous. This is due to a number of factors. Some of the smaller generic 'gully' settings (Cat. C) might have actually been Category B structures, but their interior post-settings were not sufficiently articulated (potential 'half-buildings' are discussed in *ABC Enclosures* below). Equally, given that in certain instances wall-line trenches appear to have been over-dug so as to take on eavesgully-like proportions (e.g. RH105), some of Category C's gullies might actually have been wall-trench buildings (Cat. D). Diameter is also a factor contributing to Category C's assignations, as they are predominantly of a minor scale. While, for example, the designation of Roundhouse 104 may be no less ambiguous than that of Roundhouse 103, the former's larger size makes it far more likely that it was actually an eavesgully *per se*. Similarly, of the Category E buildings, it should be noted that the relationship of their encircling ditches with doorway postholes – which in a number of instances survived when the buildings' wall-trenches did not – has also been influential; as long as the doorway postholes lay within the ditch-defined interior space (e.g. RHs 85 & 88), then it is thought likely that their ditch-gully perimeters were eavesgullies (as opposed to wall-lines).

The locations of the designated buildings are shown on Figure 4.15, and plan and photo references are given in the relevant Gazetteer entry. The Gazetteer's dating attributions are based on MPX spot-dating; where the relevant pottery has been examined in the course of the current programme this is indicated by 'MB' (i.e. Matt Brudenell). The majority of the MPX-designations were to the Middle Iron Age (40), though this was almost equalled by the number that were 'undated' altogether (33). Of the remainder, most were attributed either as 'Early–Middle' or variously Late Bronze Age and/or Early Iron Age. It is difficult to know what value to grant the MPX-dating in the light of Brudenell's. Originally attributed to the Late Bronze Age, as outlined above, Brudenell would now assign Roundhouse 39's assemblage to the Early Iron Age. This would equally be the case for Roundhouse 70, which was originally dated to the Early Iron Age but which is now held to be later (Middle Iron Age). Perhaps in that instance this is not too unexpected, as its dating was based on only 15 sherds apparently

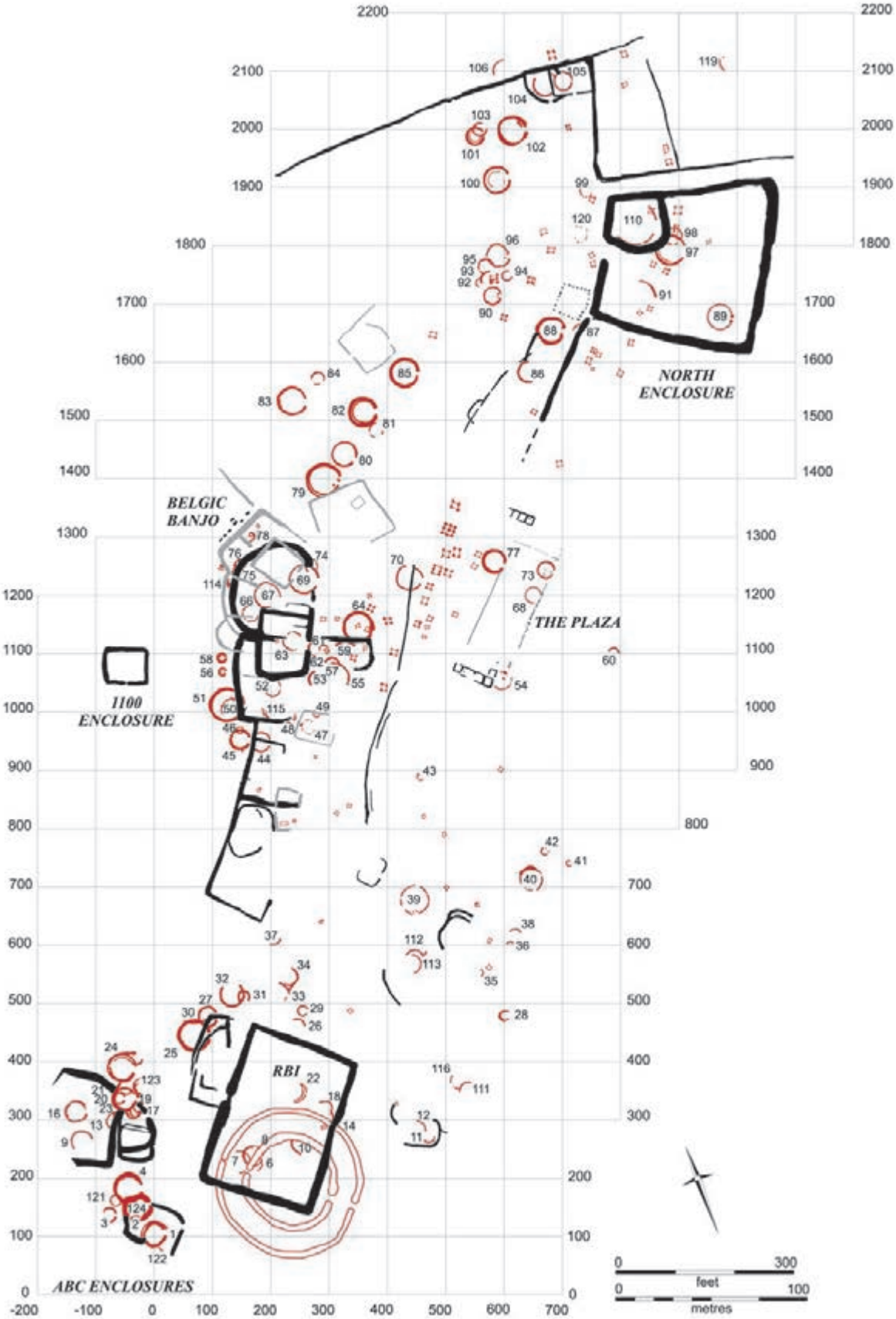


Figure 4.15. Roundhouse location plan (with 'posters' also indicated).

recovered from the features of that eavesgullied building. More serious would be Roundhouse 97's misattribution, as its assemblage was far more substantial (*c.* 550 sherds).[7] Again an eavesgully-surrounded structure, MPX allotted it a Late Bronze Age to Early Iron Age date, while Brudenell now assigns it to the 'earlier' Middle Iron Age. What is clear is that building-type obviously did not influence the MPX dating, so that robust eavesgully buildings could be granted 'early' dates, whereas, in fact, they all seem to be of Middle Iron Age or later attribution. Similarly, artefact residuality, relative to where on the site a building was located, does not seem to have been appreciated. This would obviously have been a factor in the case of Roundhouse 97, set as it was within the North Enclosure and falling within an earlier, Late Bronze/Early Iron Age settlement swathe.

RH1 (105N × 0E; Cat. E; Figs. 4.16 & 4.24) – This consisted of five re-cut 'U'-shaped eavesgullies, 0.3m and 1.1m wide and between 0.2m and 0.5m deep. With an interior wall-trench diameter of 7.9m and an eavesgully of 9.45m across, the entrance was oriented east-southeast and was 3.3m wide, with surviving internal porch postholes either side. Fills consisted of pebbly gravels, with ash and daub present. An ancillary gully was located in the southeast part of the structure, possibly an internal division. A rectangular arrangement of postholes can be inferred from the interior features, including a further potential wall-line; in total, there were 138 internal postholes and six pits (108N × -3E; 111N × 7E; 118N × 5E; 101N × 17E; 110N × 18E; 116N × -4E). Altogether, 622 sherds of pottery, weighing 5959g were recovered from associated features and gullies. Middle Iron Age (MB: 'later' Middle Iron Age).

RH2 (125N × -30E; Cat. C; Fig. 4.16) – Identified from an arcing gully, 0.4m wide and *c.* 0.15m deep, this had a 'U'-shaped profile and contained a light sandy fill; internal diameter estimated at 4.8m. Nine postholes were identified as contemporary with the structure in addition to a clay pit (122N × -24E). One sherd was definitely recovered; Middle Iron Age.

RH3 (136.6N × -75E; Cat. E; Fig. 4.16) – This consisted of a truncated 'U'-shaped eavesgully 0.8m wide and 0.2–0.4m deep, with a dark brown to very dark (black) brown pebbly loam fill; 6.4m in diameter. The entrance was oriented southeast, 4.6m wide, with internal postholes, possibly representing parts of a porch; 14 posts and stakeholes were thought to relate to the roundhouse, in addition to a pit/posthole (142N × -72E). A minimum of 31 sherds of pottery were recovered; Middle Iron Age.

RH4 (185N × -41E; Cat. E; Fig. 4.16) – Not fully excavated, this consisted of a wide irregular 'U'-shaped eavesgully, re-cut four times, that was collectively 1.5–2.4m wide, 0.3–0.65m deep and contained a light gravelly loam fill (very gravelly/pebbly loam with sand towards the bottom). The internal diameter measured 11.6m with the entrance (4.6m wide) oriented towards the southeast; a minimum of 142 sherds of pottery were recovered; Middle Iron Age. Paired with RH1.

RH5 – Late Bronze Age (see Chap. 3).

RH6 (229N × 172E; Cat. D; Fig. 4.16) – Cutting RH8, a partial surviving wall-trench, 0.3m wide, with an internal diameter of *c.* 7.9m; four postholes and two pits (232N × 165E; 237N × 167E) were identified as part of the structure. Undated.

RH7 (230N × 145E; Cat. D; Fig. 4.16) – This consisted of a partial, narrow 'U'-shaped wall-trench, 0.3m wide and 0.1m deep (internal diam. *c.* 11m), with a medium brown gravelly loam with occasional pebbles. Fourteen postholes and a pit (244N × 154E) were considered contemporary. Undated.

RH8 (240N × 171E; Cat. D; Fig. 4.16) – Truncated by RH6, this structure consisted of a narrow 'U'- to 'V'-shaped gully, 0.4m wide and 0.15–0.2m deep, that contained a sandy to mid-brown loam with occasional pebbles. The 2m-wide entrance was oriented to the southeast; four postholes may represent parts of a porch. An arcing gully was located in the northwestern third of the structure, possibly representing an internal wall; maximum internal diameter 9.9m. Thirty-two postholes were identified within the structure, eight inserted into and cutting the gully with three posthole/pit complexes (245N × 174E; 254N × 174E; 231N × 183E) and four pits (232N × 166E; 237N × 167E; 240N × 164E; 246N × 170E) thought to be contemporary. A minimum of 15 sherds of pottery were recovered. Later Bronze Age (?).

RH9 (262N × -121.5E; Cat. E; Fig. 4.16) – A 'U'-shaped eavesgully disturbed by the RBI Cemetery. Having a gravelly fill, this was 0.5m wide and 0.2m deep, with an internal diameter of 10.5m. Although an entranceway could not be defined with certainty, it was probably oriented towards the southeast; 11 postholes and a 'cooking' pit (262N × -109E) were identified within the structure, the latter cut by a 'smithing hearth' (264N × -109E). A minimum of four sherds of pottery were recovered; Middle Iron Age.

RH10 (263N × 252.5E; Cat. E; Fig. 4.16) – The remnant of a severely truncated eavesgully 0.7m wide, with an estimated internal diameter of 10m; six postholes and a soil-mark suggesting a line of postholes were thought, during initial post-excavation, to be part of this building. Undated.

RH11 (274N × 472E; Cat. B; Fig. 4.16) – This consisted of a partially surviving eavesgully, 0.3 to 0.5m wide and between 0.1m and 0.2m deep, with a fill of coarse sandy gravel with occasional pebbles; maximum internal diameter, 5.1m. Thirteen internal postholes identified as contemporary and a minimum of 14 sherds of pottery were recovered; Late Bronze Age–Early Iron Age.

RH12 – Roman.

RH13 (298N × -64E; Cat. E; Fig. 4.16) – A truncated 'U'-shaped eavesgully, 0.4m wide and between 0.1m and 0.2m deep, that contained a fill of brown gravelly loam with occasional pebbles; internal diameter, *c.* 8.25m. Four postholes were identified as part of the structure. A minimum of seven sherds of pottery were recovered; Early–Middle Iron Age.

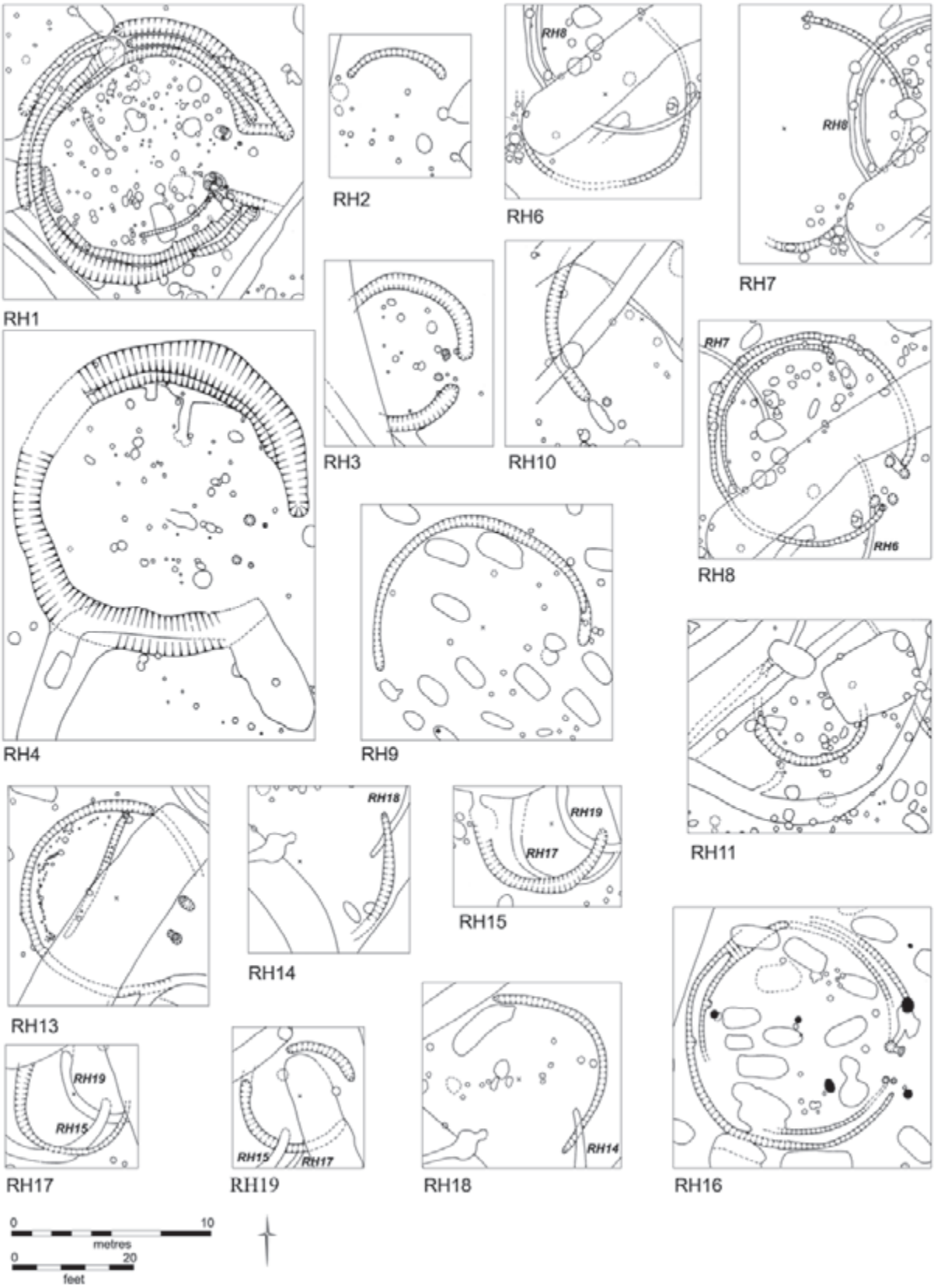


Figure 4.16. Roundhouse Gazetteer Plans (I).

RH14 (307N × 292.6E; Cat. C; Fig. 4.16) – This consisted of a gully, 0.6m wide, cutting RH18; internal diameter, *c.* 8.6m. Undated.

RH15 (314N × -34E; Cat. C; Fig. 4.16) – A truncated gully, 0.7m wide, with an estimated internal diameter of 6.4m and a possible east-facing entrance. Its relationship with RH17 was unclear; it cut RH19 and was, in turn, truncated by RH20. A minimum of 26 sherds were recovered; Middle Iron Age.

RH16 (314.6N × -132E; Cat. E; Fig. 4.16) – This consisted of an eavesgully, 0.35–0.45m wide and 11m across. The wall-trench had a diameter of 10.4m, with a southeast-oriented entrance (4m wide) and associated porch postholes; altogether, 17 internal postholes and a possible pit (310N × -122E) were associated. A minimum of eight sherds were recovered; Middle Iron Age.

RH17 (315N × -31E; Cat. C; Fig. 4.16) – A truncated gully, 0.6m wide, with an estimated internal diameter of 5.45m. A minimum of 30 sherds were recovered; Middle Iron Age.

RH18 (321N × 292.6E; Cat. C; Fig. 4.16) – A truncated gully, disturbed by RH14 and Romano-British features, this was 0.4m wide and had an estimated internal diameter of 6.9m; nine postholes and four pits (319N × 289E; 322N × 290E; 320N × 291E; ?316N × 283E) were thought to be related to this roundhouse. Undated.

RH19 (322N × -25E; Cat. C; Fig. 4.16) – A truncated 'U'-shaped gully, 0.4–0.6m wide and 0.3–0.5m deep. With an internal diameter of 5.4m, it contained a sandy loamy gravel with occasional pebbles; relationship with RH14 and RH17 unclear. A minimum of 42 sherds were recovered; Middle Iron Age.

RH20 (335N × -50E; Cat. E; Fig. 4.17) – A large 'U'-shaped eavesgully with at least one, possibly two re-cuts, that was between 0.74m and 1.4m wide and 0.3–0.6m deep, and contained a dark loamy fill with pebbles concentrated towards the top. This had an internal diameter of 10.7m, with a southeast-oriented entrance (1.7m wide) with internal and external porch-posts. Thirty post- and stakeholes were identified during post-excavation as relating to this roundhouse, with a further possible 18 postholes also located within this building and RH21; a pit (337N × -63E) possibly related to either of these structures. Cutting RHs 21 and 23; 473 sherds (5451g) were recovered (MB: 'later' Middle Iron Age)

RH21 (337N × -59E; Cat. C; Fig. 4.17) – A small gully, 0.7m wide and 0.2–0.3m deep, with a southeast-facing entrance, 1.8m wide; 10 post and stakeholes and a pit (337N × -63E) occurring inside the structure were thought to be contemporary. Cut by RH20. Undated.

RH22 (351N × 241E; Cat. D; Fig. 4.17) – A partially excavated wall-trench (*c.* 10.5m diam.), 0.3m wide, that contained 13 small postholes (RH22a). Seventeen internal post- and stakeholes were thought to be contemporary, although some may relate to RH22b that lay within RH22a's arc; RH22b wall-trench's diameter was *c.* 9.5m, with 10 postholes associated. Undated.

RH23 (353N × -47E; Cat. C; Fig. 4.17) – A small truncated 'U'-shaped gully, 0.4m wide and 0.1–0.2m deep, that contained a fill of sandy loam with large pebbles. With an internal diameter of 5.4m, eight postholes were found within the structure (two within the gully and a further posthole that may belong to either this roundhouse or RH20). Undated.

RH24 (390N × -55E; Cat. E; Fig. 4.17) – A large roundhouse with two or three irregular 'U'-shaped re-cut eaves-gullies. Some 12.8m in diameter, it was between 0.7m and 1.2m wide, 0.35–0.5m deep, and had sandy to gravelly loam fills. The building's wall-trench had an internal diameter of 10.4m, with a southeast-oriented entrance (*c.* 2m wide), with postholes located at the end of wall-line (porch?); 37 post and stakeholes were found inside the roundhouse, with further postholes occurring within the gully. Four pits (383N × -61E; 377N × -57E; 373N × -56E; 395N × -53E) and a potential oven (375N × -45E), that cut the gully, were also recorded. A minimum of 280 sherds were recovered, weighing 2552g (MB: 'later' Middle Iron Age).

RH25 (447N × 70E; Cat. E; Figs. 4.17 & 4.27) – A large, near-complete eavesgully (cut by a Romano-British ditch) with a southeast-oriented entrance (3.15m wide), and an internal diameter of 13.7m. 'U'-shaped in profile, the gully was between 1.1m and 1.9m wide and 0.3–0.7m deep, and had a fill of medium to dark brown sandy loam with gravel and pebbles. Over 70 postholes and pits were identified within the area of the roundhouse; though the assignation of the majority of these features is problematic, seven may form part of a porch arrangement. Weighing 10,373g, 928 sherds were recovered (MB: 'later' Middle Iron Age).

RH26 (463N × 247E; Cat. C; Fig. 4.17) – A partially excavated gully (remainder obscured by conveyor belt), 0.8m wide, with an estimated internal diameter of 8.2m; associated were four postholes and four pits (466N × 240E – two inter-cutting; 467N × 250E cut by 468N × 245E). Undated.

RH27 (479N × 94.6E; Cat. E; Fig. 4.17) – Truncated by RH25 and a Romano-British ditch, this was not fully excavated. It consisted of an eavesgully, 1m wide and 0.25m deep, which contained a dirty orange gravel and light to dark brown sandy loam with occasional pebbles fill. It had an internal diameter of 9.2m, with a southeast-facing entrance, 3.65m wide; a contemporary posthole and a clay pit (476N × 103E) were identified. Iron Age.

RH28 (481N × 602E; Cat. B; Fig. 4.17) – This consisted of a 'U'-shaped small re-cut gully, 1m wide (max.) and 0.15–0.3m deep, that contained a fill of light brown sandy loam with pebbles. It had an internal diameter of 4.2m and an east-facing entrance (1.6m wide); four internal postholes, four internal pits (479N × 598E; 480N × 600E; 484N × 600E; 483N × 602E) and five external pits were thought to be contemporary. Undated; possibly not a roundhouse as such.

RH29 (490N × 257E; Cat. C; Fig. 4.17) – A complete ring-gully, 5.2m in diameter and 0.55m wide, with a southeast-oriented entrance (2.4m wide). A minimum of 16 sherds were recovered; Early Iron Age.

RH30 (497N × 70E; Cat. E; Fig. 4.17) – This consisted of a partial 'V'-shaped eavesgully, *c.* 10.4m in diameter, 0.85m wide and 0.25–0.4m deep, with a fill of brown silty loam with pebbles; only two postholes were identified as being possibly associated. Undated.

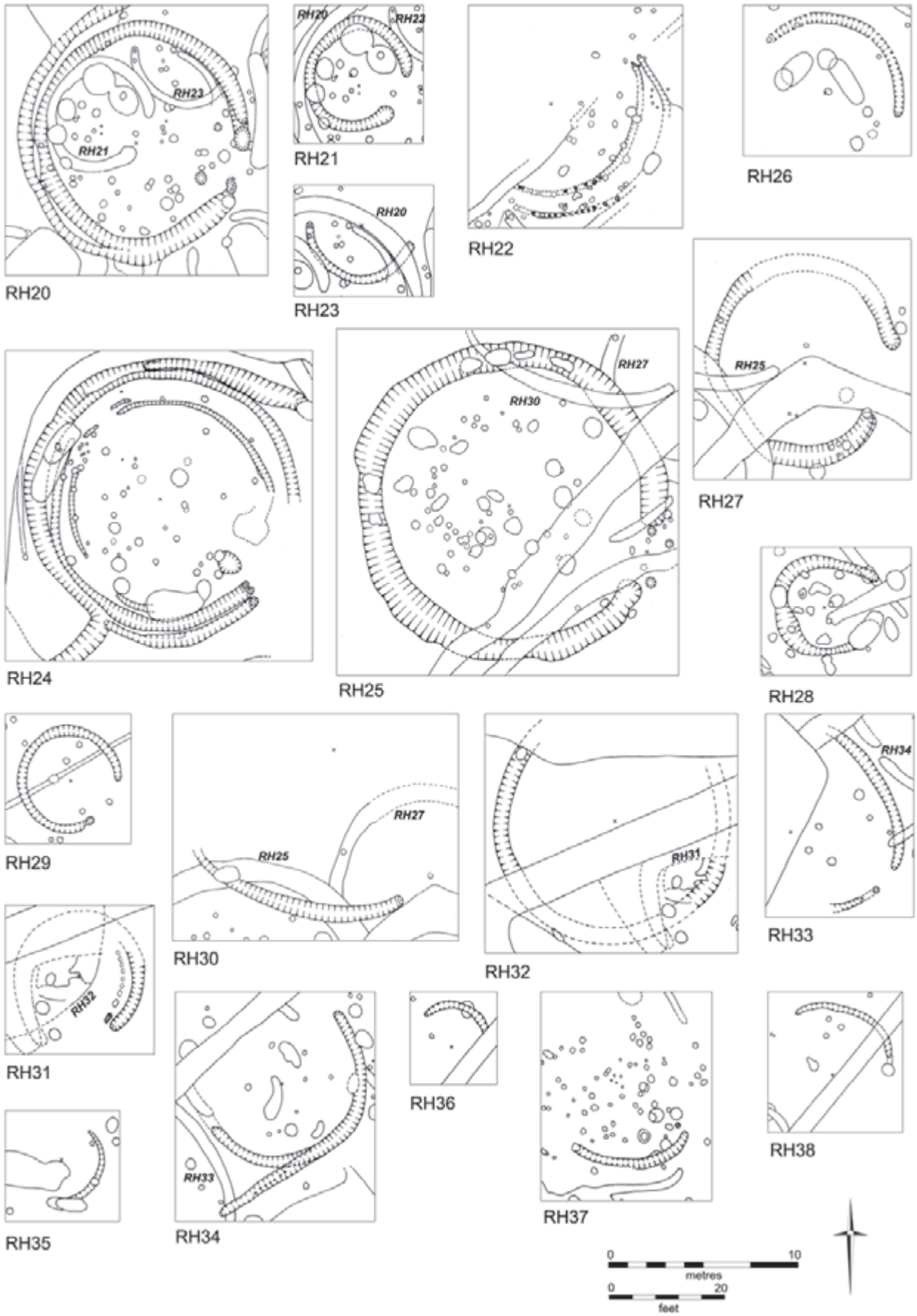


Figure 4.17. Roundhouse Gazetteer Plans (II).

RH31 (514N × 154.6E; Cat. B; Fig. 4.17) – A severely truncated and only partially exposed gully, 0.75m wide, had an internal diameter of 5.5m and south-facing entrance (*c.* 3.5m wide). A line of internal postholes parallel to the gully were observed in plan, but not investigated further; three postholes and a clay pit (506N × 150E) were thought to be contemporary with the structure. A minimum of 81 sherds were recovered; Middle Iron Age.

RH32 (518N × 136E; Cat. E; Fig. 4.17) – A truncated, partially excavated 'U'-shaped eavesgully, 0.9m wide and 0.7m deep; the fill was a light brown sandy loam with large pebbles. With an internal diameter of 11m, its entrance was possibly oriented towards the southwest. A minimum of 23 sherds of pottery were recovered; Early–Middle Iron Age.

RH33 (519N × 214E; Cat. C; Fig. 4.17) – This consisted of two, partially surviving ring-gullies, with a projected diameter of *c.* 9m, that were 0.4–0.6m wide; six postholes, thought to be associated, were identified. A minimum of two sherds were recovered; Middle Iron Age.

RH34 (548N × 234E; Cat. E; Fig. 4.17) – Approximately half of an eavesgully that was only summarily investigated. The gully was 0.4–0.55m wide, with an estimated internal diameter of *c.* 8m; eight internal postholes and two internal pits (541N × 238E; 543N × 243E) were believed to be contemporary. A minimum of four sherds were recovered; Middle Iron Age.

RH35 (554.6N × 559E; Cat. C; Fig. 4.17) – A partial, shallow 'U'-shaped gully, 0.3m wide and 0.05m deep, with an estimated internal diameter of 4.3m. It was truncated at its southern end by two intercutting pits (548N × 563E). Undated.

RH36 (601N × 612E; Cat. C; Fig. 4.17) – A partial, very truncated, shallow 'U'-shaped gully (no sections), 0.4m wide and 0.15m deep, which contained a fill of dark loam with pebbles; estimated internal diameter, 3.4m. Cuts a 'fire pit' (608N × 612E) and was truncated by a post-Medieval field boundary. Only a single sherd of pottery was apparently recovered; Late Bronze Age.

RH37 (617N × 205.6E; Cat. C; Fig. 4.17) – The southern arc of a 'U'-shaped ring-gully, 0.4m wide and 0.2m deep, with a brown pebbly loam fill and estimated internal diameter of 7.2m; 56 post and stakeholes were identified within the roundhouse, in addition to four pits (614N × 213E – two pits; 616N × 216E; 621N × 214E), a clay pit (610N × 216E) and a clay-lined pit with a possible posthole (610N × 212E). A minimum of four sherds were recovered; Middle Iron Age.

RH38 (618N × 621E; Cat. C; Fig. 4.17) – A partial, shallow 'U'-shaped gully north of RH36, 0.3m wide and 0.15–0.2m deep, with a light brown pebbly silty loam fill and an estimated internal diameter of 5.4m; three postholes and hearth pit (618N × 617E) were identified. Truncated at its southern end by two intercutting pits. Undated.

RH39 – See *Early Iron Age*-entry above.

RH40 (715N × 648E; Cat. D; Fig. 4.18) – This consisted of a truncated, shallow 'U'-shaped wall-trench, 0.15–0.55m wide and 0.4–0.5m deep, with an internal diameter of 10.9m; five postholes were present in its southwest arc. Containing two fills of brown gravelly and pebbly loam, overlain by loose lighter brown gravelly loam, the northern arc cut a 'banana'-shaped feature (710N × 665N) and Cremation 747; a ring of 11 internal postholes was associated with this structure, in addition to 33 other postholes. A number of Anglo-Saxon cremations and burials are located within and adjacent to this structure. Undated (see though *Early Iron Age* above).

RH41 (743N × 713E; Cat. B; Fig. 4.18) – A small 'C'-shaped gully, *c.* 2.5m in diameter, with a 'U'-shaped profile, 0.3m wide and *c.* 0.1m deep, that had a light to mid brown loam fill; four stakeholes were considered to be contemporary. Undated.

RH42 (764N × 671E; Cat. B; Fig. 4.18) – A small 'C'-shaped gully truncated by three later inhumations (Nos. 973, 975 & 977). The ditch was 0.38m wide and 0.04–0.15m deep (orange gravel fill), with an internal diameter of 3.8m and a 1.1m-wide, northeast-oriented entrance. A minimum of eight sherds were recovered; Late Bronze Age–Early Iron Age?

RH43 (893N × 457E; Cat. B; Fig. 4.18) – A truncated 'C'-shaped gully with a 'U'-shaped profile, *c.* 0.3m wide and 0.15m deep (dark brown pebbly loam fill), with an estimated internal diameter of 3.2m and an inferred southeast-oriented entrance. Undated.

RH44 (952.6N × 185E; Cat. D; Fig. 4.18) – A severely truncated 'U'-shaped gully, 0.5–0.7m wide and 0.15–0.3m deep, with a fill of light to dark brown sandy gravelly loam with pebbles. With an estimated internal diameter of 9.5m, one terminal survived providing evidence of a southeast-facing entrance; seven postholes and three pits (940N × 192E; 959N × 194E; 962N × 188E) were found within the structure and were thought to be contemporary. A minimum of 62 sherds were recovered, weighing 592g (MB: 'earlier' Middle Iron Age).

RH45 (956N × 149E; Cat. E; Fig. 4.18) – Located immediately northwest of RH44, this consisted of a fully excavated eavesgully, 0.7m to 1.2m wide and 0.3–0.4m deep, that had a mid to dark brown pebbly loam fill (overlying a lighter sandy gravel). With an internal diameter of 8.8m, the entrance was oriented towards the southeast and was 2.75m wide; 17 postholes and three pits (946N × 145E; 957N × 152E; 954N × 155E) were thought to be associated. Weighing 4034g, 528 sherds were recovered (MB: 'earlier' Middle Iron Age).

RH46 (972N × 148.6E; Cat. B; Fig. 4.18) – A small gully, cut by RH45, 0.3m wide with an internal diameter of 3.3m. Five internal postholes were identified (MB: Middle Iron Age).

RH47 (977N × 265.6E; Cat. A; Fig. 4.18) – A post-built roundhouse with a minimum of 15 postholes identified along the wall-line. Postholes varied from 0.05–0.25m deep and were *c.* 0.3m in diameter; the wall-trench had an internal diameter of *c.* 7.1m. Twenty-four pits and postholes, occurring both inside and outside the roundhouse (nine internal; including a clay pit: 974N × 256E) may be associated with it. A minimum of five sherds were recovered; Middle Iron Age.

RH48 (997.6N × 230E; Cat. D; Fig. 4.18) – This consisted of two short lengths of a severely truncated, 'U'-shaped wall-

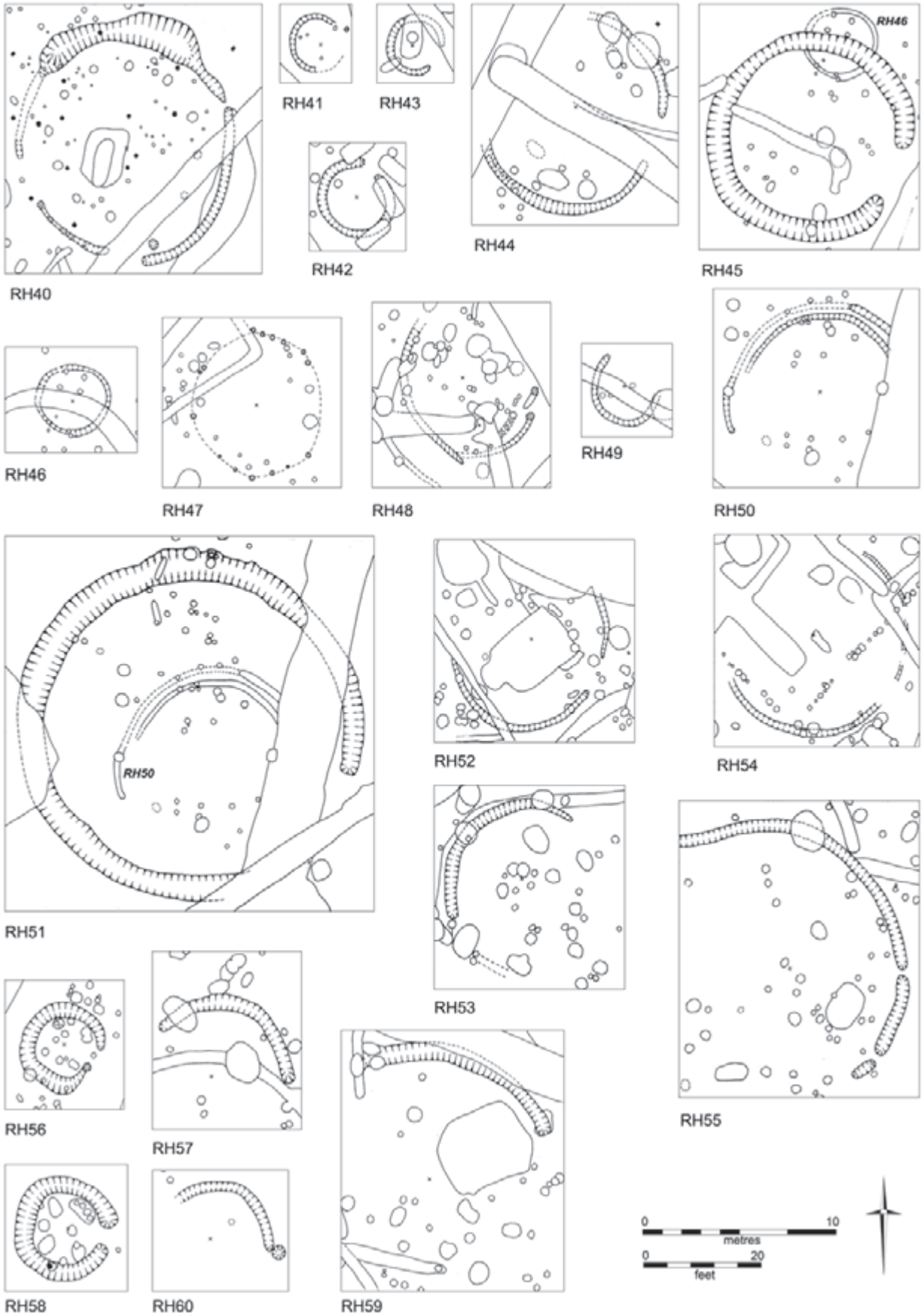


Figure 4.18. Roundhouse Gazetteer Plans (III).

trench, *c.* 0.1m wide and 0.15m deep, that contained a gravelly loam fill. With an estimated internal diameter of 7.3m, four postholes were identified as part of the wall-trench. Thirteen, possibly 14, postholes and four pits were recorded within the structure, including a 'raw' clay pit (992N × 222E) and a pit complex (1000N × 224E). Undated.

RH49 (1000N × 280E; Cat. B; Fig. 4.18) – A truncated, small 'C'-shaped gully with a 'U'-shaped profile, 0.4m wide and 0.1–0.15m deep, that contained a mid brown pebbly loam fill; internal diameter, 3.4m. One, possibly three, internal postholes were identified (MB: Middle or Late Iron Age).

RH50 (1012N × 131.6E; Cat. D; Fig. 4.18) – A truncated wall-trench, 'U'-shaped in profile that was 0.3–0.45m wide and up to 0.1m deep; internal diameter estimated at *c.* 10m. RH50 was encompassed entirely within RH51, with 15 postholes identified as internal features. A minimum of 12 sherds of pottery were recovered; Early Iron Age.

RH51 (1016N × 126E; Cat. E; Fig. 4.18) – This consisted of a large eavesgully, truncated by a enclosure ditch on its eastern side. The gully was between 1.2m and 1.5m wide and had a steep-sided, 'U'- to 'V'-shaped profile (0.5–0.7m deep) and a light to mid brown sandy gravel fill capped by a light brown pebbly loam; internal diameter 15.45m. A minimum of 20 postholes and four pits (1001N × 134E; 1016N × 113E; 1021N × 112E; 1032N × 114E) were identified within the structure. A minimum of 98 sherds were recovered, with 85 totalling 610g (MB: 'earlier' Middle Iron Age).

RH52 (1045N × 205E; Cat. D; Fig. 4.18) – This consisted of a narrow penannular gully, truncated on its northern side by pits and postholes and one of the 'Banjo' ditches (and, on its southwestern side, by a post-Medieval ditch). The 'U'-shaped gully was 0.35–0.5m wide and 0.1–0.2m deep, with a mid brown pebbly loam fill. With a southeast-facing entrance (1.9m wide), it had an internal diameter of 8.3m. Thirteen postholes and three pits (1034N × 199E; 1046N × 216E – clay pit; 1052N × 207E) were identified within the structure. A minimum of 67 sherds were recovered; Middle Iron Age (MB: Middle/Late Iron Age).

RH53 (1059N × 280E; Cat. C; Figs. 1.14 & 4.18) – This was an arcing 'U'-shaped gully, 0.6–1.0m wide and 0.1–0.2m deep, that had a light to mid brown pebbly loam fill; internal diameter estimated at 8m. Thirteen postholes and four pits (1061N × 285E; 1057N × 291E; 1066N × 290E; 1066N × 280E) occurred within the structure. Four sherds of pottery were recovered; Middle Iron Age (MB: Middle/later Iron Age).

RH54 (1059N × 597E; Cat. D; Fig. 4.18) – A truncated narrow and shallow 'U'-shaped gully, 0.3–0.5m wide and 0.05–0.1m deep, with a mid brown pebbly loam fill; estimated internal diameter, *c.* 9m. Three associated postholes were identified in addition to three pits (one at 1066N × 598E; oven – 1070N × 596E; 'fire pit' – 1058N × 598E). Undated.

RH55 (1063N × 315E; Cat. E; Figs. 1.14 & 4.18) – Identified as a roundhouse eavesgully, 13.1m in diameter, this ditch is more likely a truncated enclosure ditch. The gully was 0.75m wide and 0.3m deep, with a 'U'-shaped profile and mid brown gravel to pebbly loam fill; 33 postholes were thought to be associated, in addition to four pits (1055N × 319E; 1060N × 327E; 1071N × 317E; 1043N × 312E). Undated.

RH56 (1070N × 117E; Cat. B; Figs. 4.18 & 4.64) – This consisted of a penannular gully, 0.65–0.8m wide, with an internal diameter of 3.2m. The entrance was oriented to the southeast and was *c.* 0.9m wide. Postholes within the gully denote a square four-post structure, 1.65 × 1.67m (No. 27); several postholes had been replaced with two features consisting of two or more smaller postholes grouped together. Two sherds of mid to later first-century pottery were recovered from one of the postholes, but no other dating evidence was recovered. Postholes were between 0.25m and 0.6m in diameter and 0.2–0.45m deep. Late Iron Age/Early Roman (MB: Early Roman).

RH57 (1082N × 305E; Cat. C; Figs. 1.14 & 4.18) – A severely truncated, shallow 'U'-shaped gully, 0.7–1.0m wide and 0.25–0.3m deep, with a light to mid brown gravelly to pebbly loam fill; internal diameter estimated at *c.* 6.6m. Six postholes may belong to RH57, although these may also relate to RH55. A minimum of 113 sherds were recovered; Middle Iron Age.

RH58 (1093N × 116E; Cat. B; Figs. 4.18 & 4.64) – Located immediately to the north of RH56, this building was of identical construction with a penannular gully, 0.85–1.0m wide and 0.15–0.3m deep, with an internal diameter of 3.7m; an entrance (0.9m wide) was oriented to the southeast. Internally, several features denoted the presence of structural elements, possibly a four-post structure, 1.75 × 2.3m. The postholes were 0.58–0.65m wide and *c.* 1m long, with their depth varying between 0.15m and 0.4m. Ten sherds of Colchester Butt Beaker fabric were catalogued from the gully, and three sherds of later first century AD pottery from one of the postholes (further 'coarse IA/RB' sherds are recorded in the Notebook, No. 122, 15–27). A later cremation (No. 536; described as Romano-British, but with no further details recorded other than the presence of pottery and cremated adult bone) was inserted into the gully's southern arc. Late Iron Age/Early Roman.

RH59 (1100N × 330E; Cat. E; Figs. 1.14 & 4.18) – This comprised a severely truncated, steep-sided 'U'-shaped eavesgully (est. diam. *c.* 8.8m), 0.55m deep and *c.* 1.1m wide, that had a mid brown pebbly to gravel loam fill (paler towards the surface). Nine internal postholes and a pit complex (seven pits centred 1090N × 338E) were considered to be contemporary. A minimum of 32 sherds were recovered; Middle Iron Age.

RH60 (1102N × 788E; Cat. C; Fig. 4.18) – This consisted of a 'remnant' eavesgully with only the eastern end surviving; diameter *c.* 5.6m. It was 0.6m wide and between 0.15m and 0.2m deep. No further data. Undated.

RH61 (1100N × 294E; Cat. B; Figs. 1.14 & 4.19) – A truncated, shallow 'U'-shaped gully, 0.4–0.6m wide and 0.05–0.15m deep, had a homogenous mid brown pebbly loam. With an estimated internal diameter of 4.3m, a possible entrance posthole was located by the eastern butt-end. A single sherd was recovered; Middle Iron Age.

RH62 (1111N × 280E; Cat. B; Figs. 1.14 & 4.19) – A severely truncated gully, *c.* 1.15m wide (cut by GH103 and GH104); possibly a 'C'-shaped ring-ditch with postholes located near each terminal. Undated.

RH63 (1124N × 238E; Cat. E; Fig. 4.19) – This consisted of three segments of a 'U'-shaped eavesgully, between 0.05m and 0.25m deep, with a light sandy to dark brown pebbly loam fill and with an estimated internal diameter of 8.9m. Three postholes and six pits (1112N × 237E; 1133N × 236E; 1117N × 247E; 1120N × 246E; 1119N × 244E; 1127N × 226E), were possibly associated with the structure. Undated.

RH64 (1147N × 351E; Cat. E; Figs. 1.14 & 4.19) – This consisted of a substantially complete, re-cut 'U'-shaped eavesgully up to 1.5m wide with straight to uneven sides, 0.4–0.55m deep, that had a grey brown silty gravel to light brown gravelly loam fill; estimated internal diameter *c.* 13m. Up to 36 internal postholes and one pit (1140N × 338E) were identified. Weighing 876g, 123 sherds were recovered (MB: 'earlier' Middle Iron Age).

RH65 (1163N × 312E; Figs. 1.14 & 4.18) – Roman.

RH66 (1171N × 165E; Cat. E; Fig. 4.19) – This consisted of a severely truncated, 'U'-shaped eavesgully, 0.2–0.5m wide and 0.05–0.1m deep, that contained a yellow to brown pebbly and sandy loam fill; internal diameter of *c.* 8m, with a northeast-facing entrance (*c.* 5.3m wide). Thirty-eight internal postholes and five pits (1174N × 170E – clay pit; 1172N × 165E; 1172N × 157E; 1186N × 175E; 1175N × 174E) were identified. Undated.

RH67 (1203N × 194E; Cat. E; Fig. 4.19) – A narrow 'U'-shaped eavesgully, *c.* 0.6m wide and 0.1–0.2m deep, that had a light brown pebbly loam fill; internal diameter of 12.2m and a 7.8m- wide, southeast-facing entrance. Eleven internal pits (a possible complex centred *c.* 1197N × 201E) and three postholes were thought to relate to this structure. A minimum of 33 sherds were recovered; Early–Middle Iron Age.

RH68 (1203N × 651E; Cat. D; Fig. 4.19) – This consisted of a wall-trench, 0.02m deep and 0.2m wide, with the entrance oriented southward (as shown on the plan, 4.1m wide). The wall-trench had a diameter of 8.2m, whose southern arc was cut by RB Structure 8. Three postholes and a pit/posthole (1215N × 652E) inside the roundhouse were assigned to the structure. The only pottery recovered from the gully was small flint-gritted sherds.

RH69 (1230N × 260E; Cat. E; Figs. 4.19, 4.27 & 5.37) – A large, partially truncated 'U'-shaped eavesgully, 0.4–1.0m wide and 0.25–0.45m deep, that had a medium to dark brown gravelly or pebbly loam and sandy gravel fill. Having a diameter of 13.7m and with a southeast-facing entrance (4.35m wide), porch postholes were also apparent. Interior to the eavesgully a wall-line was excavated (connecting with the porch postholes), the projection of which would provide an internal diameter of 13.1m. A minimum of 140 sherds were recovered from the structure's features. Upwards of 64 postholes and five pits (1213N × 250E; 1225N × 250E; 1234N × 255E – two pits?; 1233N × 266E; 1245N × 272E) were identified within the interior. Early–Middle Iron Age; a Late Iron Age brooch was recovered from where Enclosure ditch B6 cut the building (see Haselgrove, Chap. 5, No. 26).

RH70 (1233N × 438E; Cat. E; Fig. 4.19) – An eavesgully with a southeast-oriented entranceway, 3.8m wide. The gully was 11.6m in diameter, 0.45m wide and 0.05–0.2m deep, and had relatively steep, truncated sides; it was concave in profile, with a rounded to flat base, and contained a medium brown pebbly loam fill. Thirteen postholes and four pits (1244N × 425E; 1237N × 431E; 1243N × 439E; 1219N × 443E) were attributed to the structure during the earlier phase of post-excavation analysis, four of these possibly forming an internal porch structure. A minimum of 15 sherds were recovered; Early Iron Age (MB: Middle Iron Age)

RH71 – Roman.

RH72 (1240N × 145E; Cat. D; Fig. 4.19) – A severely truncated and partially surviving arc, with an estimated diameter of 5.5m and width of 0.35m. The surviving segment of its gully was 0.15m deep, with steep sides and a concave base, with a single brown pebbly fill. No finds were recovered from the feature, although three postholes were identified as being part of it. Undated.

RH73 (1246N × 673E; Cat. D; Fig. 4.19) – Situated adjacent to RH68, this was located within the northwest corner of the Double Ditch Enclosure and was stratigraphically earlier than RH71. Consisting of a narrow penannular 'gully' – probably a wall-trench – with a southeast-oriented entrance (2.6m wide), this was between 0.25m and 0.4m wide and 8.2m in diameter. Due to truncation by RH71, no internal features were positively identified. Undated, but likely to be Late Iron Age/Early Roman attribution based on its replacement by RH71.

RH74 (1253N × 272E; Cat. E; Fig. 4.19 & 5.37) – This comprised an eavesgully, either truncating or cut by RH69, that had a diameter of 6m and a probable southwest-facing entrance. The gully, 0.35–0.45m wide and 0.2m deep, had steep sides and a concave base; the fill consisted of a medium to dark brown pebbly loam. Four postholes and three pits (1245N × 272E; 1247N × 275E; 1250N × 274E) were presumed to be contemporary with the structure, although the first may also relate to RH52. A minimum of 26 Middle Iron Age sherds were recovered (MB: Middle Iron Age, possibly Late Iron Age).

RH75/76 (1245N × 147E; Cat. B; Figs. 4.19 & 4.64) – Although formally classified as a penannular gully building, RH75 consisted of a rectangular gully (*c.* 0.3–0.6m wide) that enclosed an area of 18sqm (4 × 4.6m). Cutting the Banjo's Enclosure 11 ditch and RH72, the gully had been re-cut at least once, with depths at the southern terminals increasing from 0.1–0.3m; the entranceway was 1.15m across and oriented towards the southeast. Having steep sides and a concave base, the feature was variously filled with very sandy light brown loam and a dark brown pebbly loam. A number of (uncatalogued) Late Iron Age/Early Roman pottery sherds were recovered during its excavation, with higher densities forthcoming from the gully's terminals. Situated within the gully of RH75, and partially cutting it, was the penannular gully of RH76 (0.25–0.3m wide and 3.3m in diam.). The latter appears

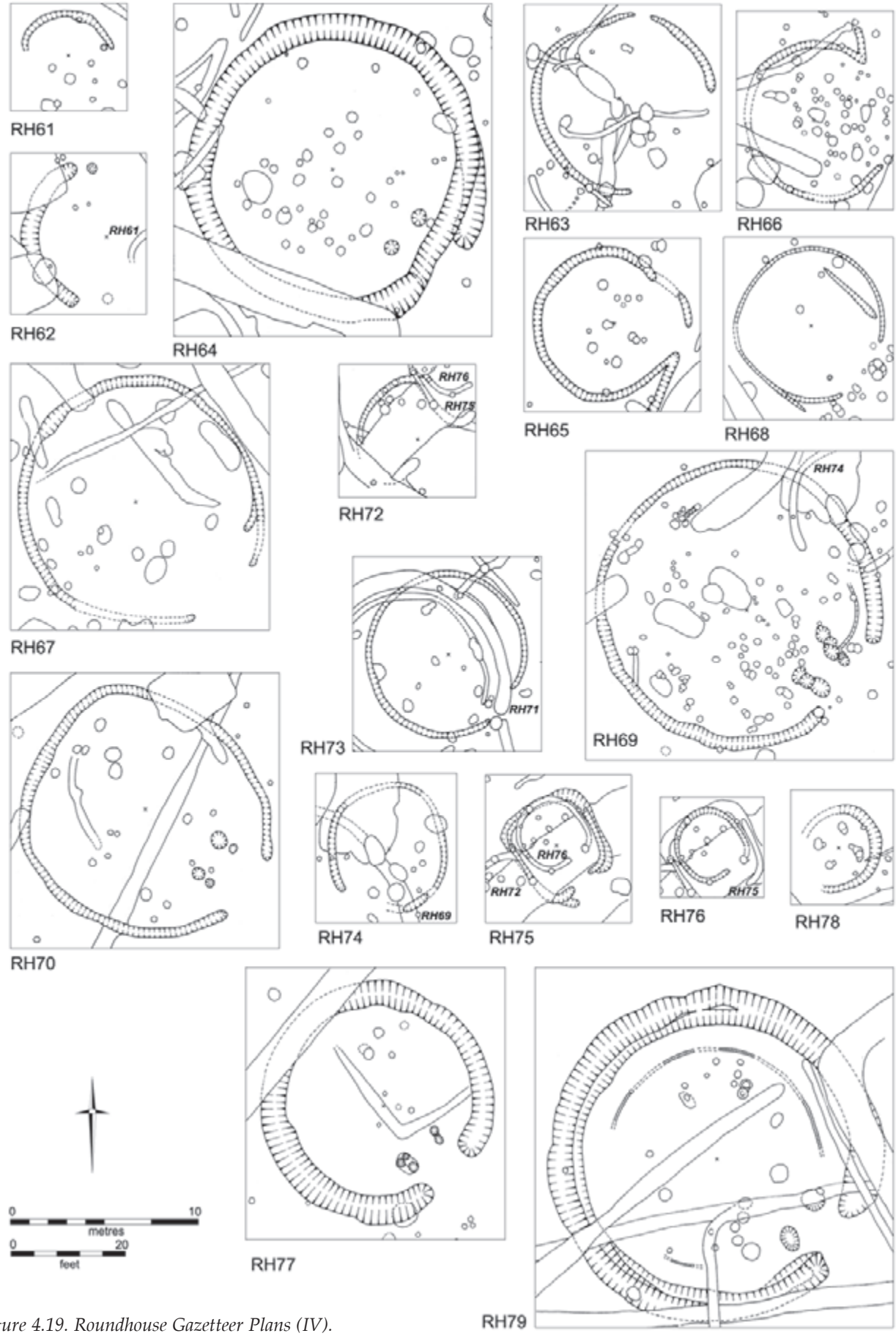


Figure 4.19. Roundhouse Gazetteer Plans (IV).

to be a smaller replacement of RH75, with its entrance (0.8m wide) also oriented towards the southeast. At the northern terminal was a small posthole, with five postholes located along the gully's lower arc. These may represent related structural elements; they were 0.38–0.61m deep and 0.22–0.4m in diameter. Late Iron Age/Early Roman.

RH77 (1260N × 585E; Cat. E; Fig. 4.19) – A large eavesgully, *c.* 10m in diameter, with a 2.65m-wide southeast-facing entrance. Cut by the Double Ditch Enclosure, the gully was 1.65m wide and 0.41–0.56m deep. Having steep sides and a 'V'-shaped profile, the fills consisted of grey–brown gravelly silt to medium brown pebble-free silt overlain by a grey-brown gravelly loam. Internal features consisted of six postholes and a possible hearth (1242N × 596E); two postholes formed part of the entranceway. Some 190 sherds of Middle Iron Age pottery were recovered from associated contexts (MB: 'earlier' Middle Iron Age).

RH78 (1302N × 166E; Cat. B; Figs. 4.19 & 4.64) – This was represented by a partially truncated penannular gully with an estimated diameter of 4.3m. Between 0.25 and 0.7m wide, and *c.* 0.2m deep, the gully was very shallow with a concave base, and had mid brown sandy to pebbly silt. Four distinct postholes formed an internal square structure and had each been re-cut. This setting showed morphological similarities to RH56 and RH58 and other four-posters on the site. Undated.

RH79 (1400N × 293E; Cat. E; Fig. 4.19) – This was represented by a large eavesgully truncated in the northeastern quadrant. Re-cut three times, the area inside the eavesgully was 14.3m in diameter, and it probably had a southeast-facing entrance (*c.* 2.6m wide). The eavesgully and its re-cuts were between 0.65–0.85m wide and 0.3–0.5m deep; its sides were shallow to steep, with an irregular to concave base and it was filled with a light to mid brown gravelly or pebbly loam. Not shown on the *Atlas* plan, but recorded on the MPX plan, is the roundhouse's wall-line, 11.9m in diameter; there were apparently no postholes or pits between this wall-trench and the gully. Otherwise, internal features included 10 pits and nine postholes, with four large postholes/pits located just inside the entrance. A total of 194 sherds of Middle Iron Age pottery were recovered from four associated features (MB: 'later' Middle Iron Age).

RH80 (1445N × 330E; Cat. E; Fig. 4.20) – This consisted of a re-cut eavesgully (truncated by an enclosure ditch), 11.6m in diameter, with a 2.9m-wide southeast-oriented entrance. Some 0.5–1.0m wide and 0.11–0.36m deep, the gully had steep sides, a concave base and contained a light brown gravelly to pebbly loam fill. Four internal postholes and two, probably internal, porch-posts were associated with the structure; a minimum of 111 sherds, attributable to the Early–Middle Iron Age, were recovered.

RH81 (1485N × 382E; Cat. E; Fig. 4.20) – This was represented by a truncated eavesgully with an estimated internal diameter of 6.7m. Located to the southeast and probably earlier than RH82 (the relationship is unclear), the gully was *c.* 0.45m wide and 0.15–0.25m deep. It had steep sides and a concave base, and was filled with a light to medium brown slightly to very pebbly loam and some sand; a minimum of 15 sherds of Early–Middle Iron Age pottery were recovered.

RH82 (1516N × 361E; Cat. E; Fig. 4.20) – This comprised three eavesgullies, with successive internal diameters of 11.1m, 12.2m and 14m, and was 0.6–1.45m wide and 0.25–0.4m deep; its fills consisted of light brown pebbly or gravelly loam, and a light brown loam overlain by a charcoally layer (re-cut). Few internal features were identified, but these included three postholes, including on either side of the 2.9m-wide southeast-facing entranceway, as well as a clay pit (1512N × 360E) and a cremation (No. 1040). The excavators and earlier post-excavation interpreted the middle gully as the latest in the sequence. From five associated contexts, 623 sherds of Middle Iron Age pottery was recovered (MB: 'earlier' Middle Iron Age).

RH83 (1535N × 238E; Cat. E; Fig. 4.20) – This consisted of a re-cut eavesgully, 13.1m in diameter and with a 2.9m-wide southeast-facing entrance. The gully, 0.85m to 1.3m wide and 0.2–0.4m deep, had shallow to steep sides and contained a light brown loam fill with few pebbles (with medium brown pebbly/gravelly loam and charcoal in the re-cut). Some 12 postholes, a 'fire' pit (1524N × 233E) and a hearth (1536N × 227E) were identified within the structure; two of the postholes (with probable replacements) located, on either side, interior to the entranceway, were possibly porch-related. A minimum of 55 sherds attributed to the Early–Middle Iron Age period were recovered. A Late Iron Age brooch (see Haselgrove, Chap. 5, No. B4) was recovered from Cremation 651 that cut the building's gully.

RH84 (1575N × 281E; Cat. D; Fig. 4.20) – This comprised a partially truncated wall-trench 5.8m in diameter, 0.25–0.75m wide and 0.1–0.25m deep. The gully had steep sides and a concave base, and had a medium brown pebbly sandy loam fill; 18 stakeholes and a posthole were identified within the structure, with a possible external porch posthole located just outside the entranceway. A minimum of 18 sherds were recovered from associated features, attributed to the Later Bronze–Middle Iron Age.

RH85 (1584N × 432E; Cat. E; Fig. 4.20) – This was represented by a large eavesgully, re-cut at least once, that was 12.8m in diameter, 1.55m wide and 0.4–0.5m deep, and a 2.15m-wide southeast-facing entrance. The gully, steep-sided with a concave to flatish base, contained a light brown to orange gravel fill (with more pebbles towards the centre and top: drip-line?). Some 14 internal postholes were identified, with two located inside and either side of the entrance. A minimum of 163 sherds were recovered, attributed to the Late Bronze–Middle Iron Age.

RH86 (1585N × 643E; Cat. E; Fig. 4.20) – This was marked by a partially truncated eavesgully. With a diameter of 10.7m, it was *c.* 0.8m wide and 0.15–0.3m deep; steep-sided with concave base, its fill consisted of light brown pebbly loam (sandy towards the sides). Sixteen postholes were found inside the structure, although these may relate to a rectangular post-built building oriented roughly northeast–southwest (multi-cut 6238

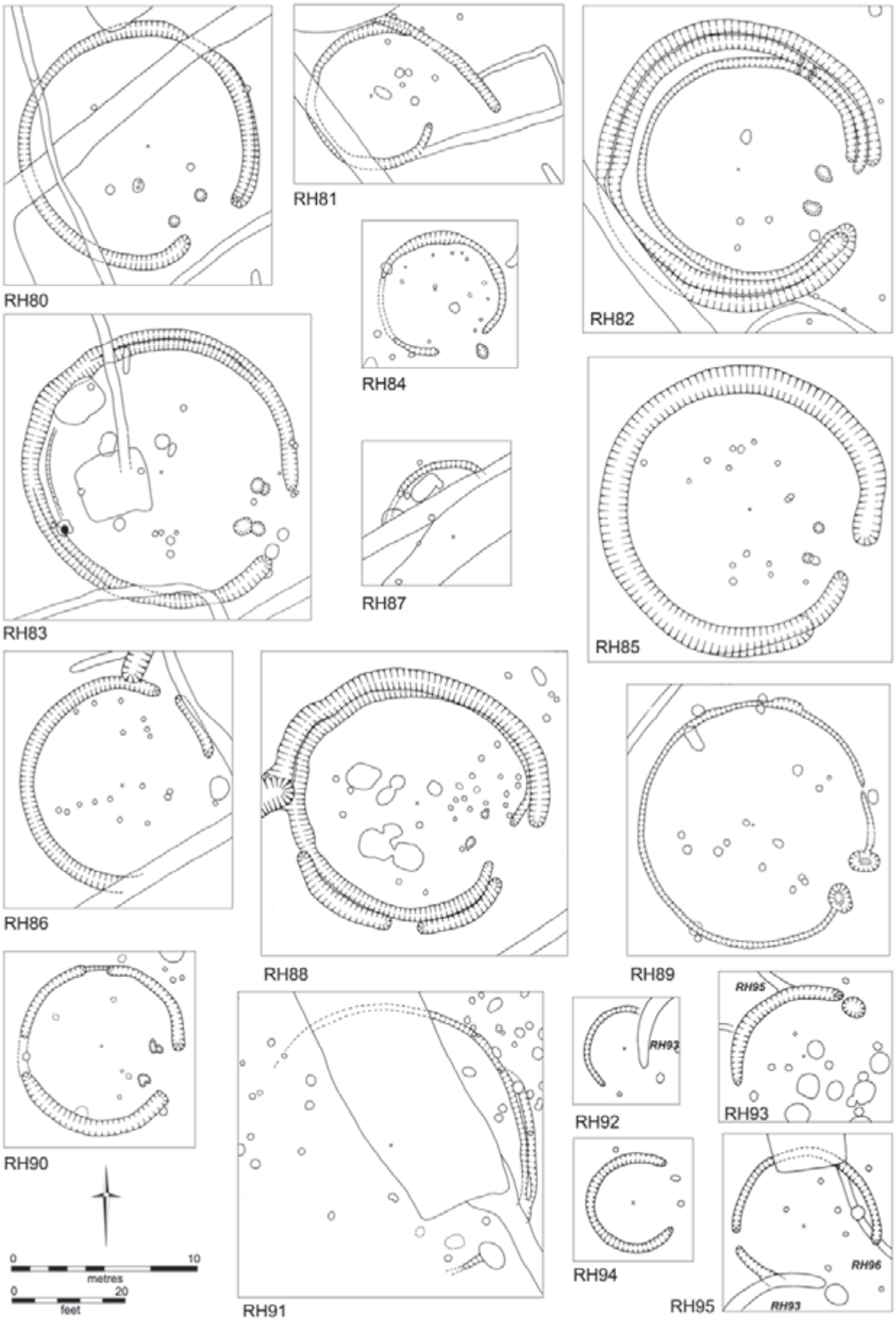


Figure 4.20. Roundhouse Gazetteer Plans (V).

not noted on the *Atlas* plan). A minimum of 13 sherds of pottery, identified as Early Iron Age, were recovered; however, assessment of the pottery recovered from the paired RH88 could indicate that this structure was of Middle Iron Age date.

RH87 (1654N × 731E; Cat. C; Fig. 4.20) – This severely truncated gully, with only a partial arc surviving (est. diam. *c.* 4.4m), was *c.* 0.45m wide and 0.1–0.15m deep. Where the gully survived, it had steep sides, a concave base and contained a light brown sandy loam fill with pebbles; three postholes (one located within the line of the gully at its southern end) and a pit were thought to be contemporary. Undated.

RH88 (1657N × 682E; Cat. E; Fig. 4.20) – This consisted of a large eavesgully, 11.6m in diameter, with a 1.8m-wide southeast-facing entrance; there was evidence of two, possibly three re-cuts, and it formed part of a paired arrangement with RH86. The gully was between 0.75–1.7m wide and 0.4–0.5m deep; it was steep-sided with an uneven or concave base, and had a light to medium brown gravelly or pebbly loam fill with some charcoal occurring within the bottom of the outer gully. Twenty-one postholes were identified within the structure and, in addition, two pits and two 'pink' pits were excavated (1658N × 671E; 1647N × 680E). Some 826 sherds of Middle Iron Age pottery were recovered from associated contexts (MB: 'later' Middle Iron Age).

RH89 (1680N × 971E; Cat. D; Fig. 4.20) – A shallow 'U'-shaped wall-trench, 0.45m wide, with an internal diameter of 13.6m and a 1.8m-wide southeast-facing entrance (with two entranceway postholes at each terminal; gully's depth not recorded). Ten internal postholes, a pit and a hearth (1692N × 975E) were identified. A minimum of 45 sherds, attributable to the Early–Middle Iron Age, were recovered (MB: 'later' Middle Iron Age).

RH90 (1716N × 582E; Cat. E; Fig. 4.20) – An eavesgully, 7.9m in diameter, with a 2.9m-wide southeast-facing entrance. The 'U'-shaped gully, having shallow to steep sides and a concave base, was 0.3–0.85m wide and 0.1–0.25m deep; its fills consisted of a light brown very pebbly sandy loam to a medium brown loam with some pebbles and charcoal. Two potential porch-related postholes were located within the structure, with other postholes identified by ephemeral soil-marks. A total of 291 Middle Iron Age sherds were recovered from the gully (MB: 'later' Middle Iron Age).

RH91 (1717N × 835E; Cat. D; Fig. 4.20) – This was represented by a severely truncated wall-trench, with at least one re-cut: estimated internal diameter, 15.8m; gully-width, 0.4–0.5m; depth, 0.15m. Ten postholes may have been contemporary with this structure. A minimum of 38 sherds of pottery (max. 291) were recovered from the roundhouse's features and attributed to the Late Bronze–Middle Iron Age.

RH92 (1738N × 560E; Cat. C; Fig. 4.20) – This comprised a 'C'-shaped, 0.35m-wide ditch or gully in an area of several roundhouses; estimated internal diameter, 4.6m. A single posthole located on the line of the feature was possibly contemporary. Its relationship with RH93 is unclear, although it was thought that RH93's gully cut RH92. Undated.

RH93 (1745N × 574E; Cat. C; Fig. 4.20) – This consisted of a partial arc of a 0.7–0.9m-wide gully with an estimated diameter of 11m. The 'U'-shaped profiled gully, 0.15–0.3m deep, with steep sides and a concave base, had a medium brown pebbly loam fill. Three pits and five postholes were thought to be contemporary with the structure, one presumed to be the western entranceway posthole. Undated.

RH94 (1750N × 606E; Cat. C; Fig. 4.20) – This was represented by a small, 0.5m-wide penannular gully, 4.6m in diameter, with a 5m-wide northeast-facing entranceway. The ditch was 'U'-shaped, 0.1–0.2m deep, with steep sides and concave base; its fills consisted of a light grey to brown very pebbly loam. The post-excavation plan indicates two potential porch-posts (not on *Atlas* plan). Undated.

RH95 (1765N × 570E; Cat. C; Fig. 4.20) – This consisted of a partially truncated, 0.5m wide gully (cut by RH93 and also GH124) with a diameter of 7.8m. It varied from a 'U'- to 'V'-shaped profile (0.2–0.3m deep) and had a light to medium brown pebbly loam, with more pebbles towards the top; locally, fired clay was recovered from the top of the fill. Five postholes and a pit (1772N × 579E) were presumed to be contemporary. Undated.

RH96 (1784N × 591E; Cat. E; Fig. 4.21) – This consisted of a substantially complete eavesgully with an diameter of 11.3m and a southeast-facing entrance, *c.* 2m wide (features relating to a probable porch-like arrangement were present). The gully was 0.5–0.7m wide and 0.05–0.25m deep, and had a 'U'-shaped profile. The fill was a light brown pebbly loam, with more pebbles found towards the surface. Nineteen postholes and two pits (1786N × 574E; 1782N × 590E) were considered to be contemporaneous. A minimum of 35 sherds, attributable to the Early–Middle Iron Age, were recovered.

RH97 (1795N × 887E; Cat. E; Figs. 4.21 & 4.24) – This was represented by a large eavesgully with an estimated diameter of 13.7m, with a 3.8m-wide south-facing entrance; it was partially truncated by the North Enclosure's sub-enclosure (No. 16). Some 0.6m to 1.15m wide and 0.35–0.44m deep, the gully was 'V'-shaped, with steep sides, and contained a light brown to light brown gravelly to light brown sandy pebbly loam fill (in places overlain by yellow clay and sand). Internal features included 74 postholes, 10 stakeholes, six pits and a 'fire' pit (1780N × 885E). A 0.15m-wide wall-trench, with a diameter of 11.90m, was located interior to the eavesgully. A further 11 pits or postholes may either have been contemporary with this structure or else RH98. A minimum of 548 sherds of pottery, dated from the Late Bronze–Early Iron Age, were recovered (MB: 'earlier' Middle Iron Age).

RH98 (1818N × 893E; Cat. D; Figs. 4.21 & 4.24) – Truncated by RH97 and the North Enclosure's sub-enclosure (No. 16), this was represented by a *c.* 0.4m-wide wall-trench, 10.7m in diameter and 0.2–0.3m deep; it had a southeast-facing entrance, *c.* 2.7m wide. Its fills consisted of a medium brown pebbly loam to medium brown sandy loam with gravel. Eight postholes and a pit were thought to be contemporary with RH98, with a further 11 also possibly associated either with this structure or RH97. A minimum of 48 sherds were

recovered, attributed to the terminal Late Bronze Age/ Early Iron Age.

RH99 (1895N × 741E) – Late Bronze Age (see Chap. 3).

RH100 (1915N × 590E; Cat. E; Figs. 4.21 & 4.27) – This consisted of a large eavesgully, *c.* 13m in diameter, 0.8–1.22m wide and 0.25–0.55m deep. The gully had steep to near-vertical sides and a concave or 'V'-shaped base; its fills consisted of light brown pebbly loam above reddish dirty gravelly loam. Two entranceway-related postholes survived inside the 2.9m-wide east-facing entrance and these also demarcated the terminals of a narrow wall-trench, *c.* 0.15m wide and with a diameter of 7.9m. Within the interior, 29 postholes were identified, in addition to a pit (1927N × 591E). A total of 197 sherds of Middle Iron Age pottery were recovered (MB: 'later' Middle Iron Age).

RH101 (1990N × 552E; Cat. E; Fig. 4.21) – Similar to RH100, this consisted of an eavesgully, cut by or cutting RH103 (plan and description at odds), *c.* 8m in diameter, 0.7–1.25m wide and 0.15–0.39m deep, with steep sides and concave base. The fill was a medium brown gravelly loam, with a pebbly lens towards the top; some charcoal was also present. Within the structure two postholes flanked a 2.6m-wide southeast-facing entrance, and were located at the terminals of a narrow, *c.* 0.25m-wide, wall-trench that was some 5.8m in diameter. Three stakeholes and a single posthole were also identified as being contemporary. Some 513 sherds of Middle Iron Age pottery were recovered from three feature contexts (MB: 'earlier' Middle Iron Age).

RH102 (2000N × 615E; Cat. E; Fig. 4.21) – This consisted of a severely truncated and disturbed eavesgully, *c.* 13.1m in diameter, with up to four re-cuts whose stratigraphic relationships were uncertain due to the degree of disturbance. With steep sides and concave base, the gully had a medium brown gravelly loam fill, with more pebbles towards the top; it was *c.* 1.4m wide and 0.5–0.9m deep, with a 2.9m-wide southeast-facing entrance. Located interior to the eavesgully was a wall-trench, 0.35–0.6m wide, with a projected diameter of *c.* 11.9m. A minimum of 93 sherds were recovered from the structure; Early–Middle Iron Age.

RH103 (2001N × 560E; Cat. C; Fig. 4.21) – Cut by or cutting RH101, this structure was represented by an eavesgully, 6.7m in diameter, 0.45–0.85m wide and 0.1–0.25m deep, with steep sides and concave base; its fill consisted of a medium brown gravelly loam/ silt with more pebbles towards the top. The entrance was 3.5m wide and faced northeast. Four stake- and postholes were identified within the structure, with one posthole (porch-related?) located adjacent to the gully's southern terminal. A minimum of 102 sherds of pottery were recovered and assigned to the Late Bronze–Middle Iron Age.

RH104 (2078N × 671E; Cat. E; Figs. 4.21 & 4.48) – This consisted of a truncated eavesgully that was 11.9m in diameter, 0.45–0.8m wide and 0.1–0.2m deep. It was relatively shallow to steep-sided, with a concave base and the fill comprised a medium brown to grey pebbly loam, lighter towards the base. It was presumed to be later than RH105, although this relationship was unclear. Twenty-nine internal postholes and a pit (2080N × 668E) were thought to be contemporary, and a further seven external postholes 'respected' the ring-gully; 103 sherds of Early–Middle Iron Age pottery were recovered.

RH105 (2085N × 702E; Cat. D; Figs. 4.20 & 4.48) – A wall-trench, 8.85m in diameter, 0.5–0.65m wide and 0.11–0.3m deep, with a steep-sided 'U'- to 'V'-shaped profile. With a 2m-wide south-facing entrance, the fill consisted of a medium brown sandy or pebbly loam. Eleven internal postholes were identified, four possibly representing elements of a porch arrangement; five pits were also identified as contemporary – 2076N × 693E; 2075N × 695E; 2080N × 704E; 2074N × 698E; 2080N × 697E – the latter two being described as 'pink' pits. The relationship with RH104 was uncertain, but this building appears to be located within the western half of a small rectangular enclosure. The 70 sherds recovered from the roundhouse were dated to the Middle Iron Age (MB: 'earlier' Middle Iron Age).

RH106 (2102N × 601E; Cat. C; Fig. 4.21) – This comprised a partially surviving gully-arc with an estimated diameter of 9.9m, which was *c.* 0.4m wide and 0.05–0.25m deep. Steep-sided and 'U'-shaped in profile, the fill was a dirty pebbly loam with frequent clay scraps. Seven pits were considered to be contemporary with the structure (2097N × 598E; 2095N × 602E; 2098N × 593E; 2101N × 596E; 2117N × 602E; 2113N × 602E; 2112N × 604E), in addition to a possible hearth pit (2113N × 600E). A total of 15 sherds of pottery were recovered; attributed to the Late Bronze Age, the status of this structure is further discussed – in relationship to the terrace's 'landscape boundaries' – in the context of the North Enclosure's section below.

RH107–109 – Late Bronze Age (see Chap. 3).

RH110 (1840N × 830E; Cat. A; Figs. 1.15 and 4.46–7) – This was located within the North Enclosure's sub-enclosure (No. 16). Consisting of a minimum of 21 postholes forming a central ring some 10.1m in diameter, with a possibly 2m-wide entrance-gap oriented to the north. Arcing around the post-ring, with an interval-space of *c.* 5.4–6.5m between them, was a 0.4m-wide 'screen'-trench. Along the southern part of this trench were numerous small post- and stakeholes, *c.* 15cm across and up to 0.55m deep, which suggests that a 'palisade'/ fence was erected around the post-built roundhouse proper, with a 4.5m-wide southeast-oriented entrance (MB: 'earlier' Middle Iron Age). Note that two Late Iron Age brooches were recovered from sub-enclosure ditch that surrounded the building (see Haselgrove, Chap. 5, Nos. 48 & 58) and which itself was of later date (see Brudenell, Chap. 5).

RH111 – Roman.

RH112 (583N × 449E; Cat. D; Fig. 4.8) – This was identified during the second phase of post-excavation analysis and comprises a small section of wall-trench and soil-mark, with an estimated diameter of 9.1m (*c.* 0.45m wide). No further data relating to this structure has been identified or any finds associated with it. Undated.

RH113 (569N × 445E; Cat. D; Fig. 4.8) – Along with RH112, this was identified as a probable roundhouse wall-trench. Examination of the archival and field notebooks revealed that this was recognised only as a soil-mark

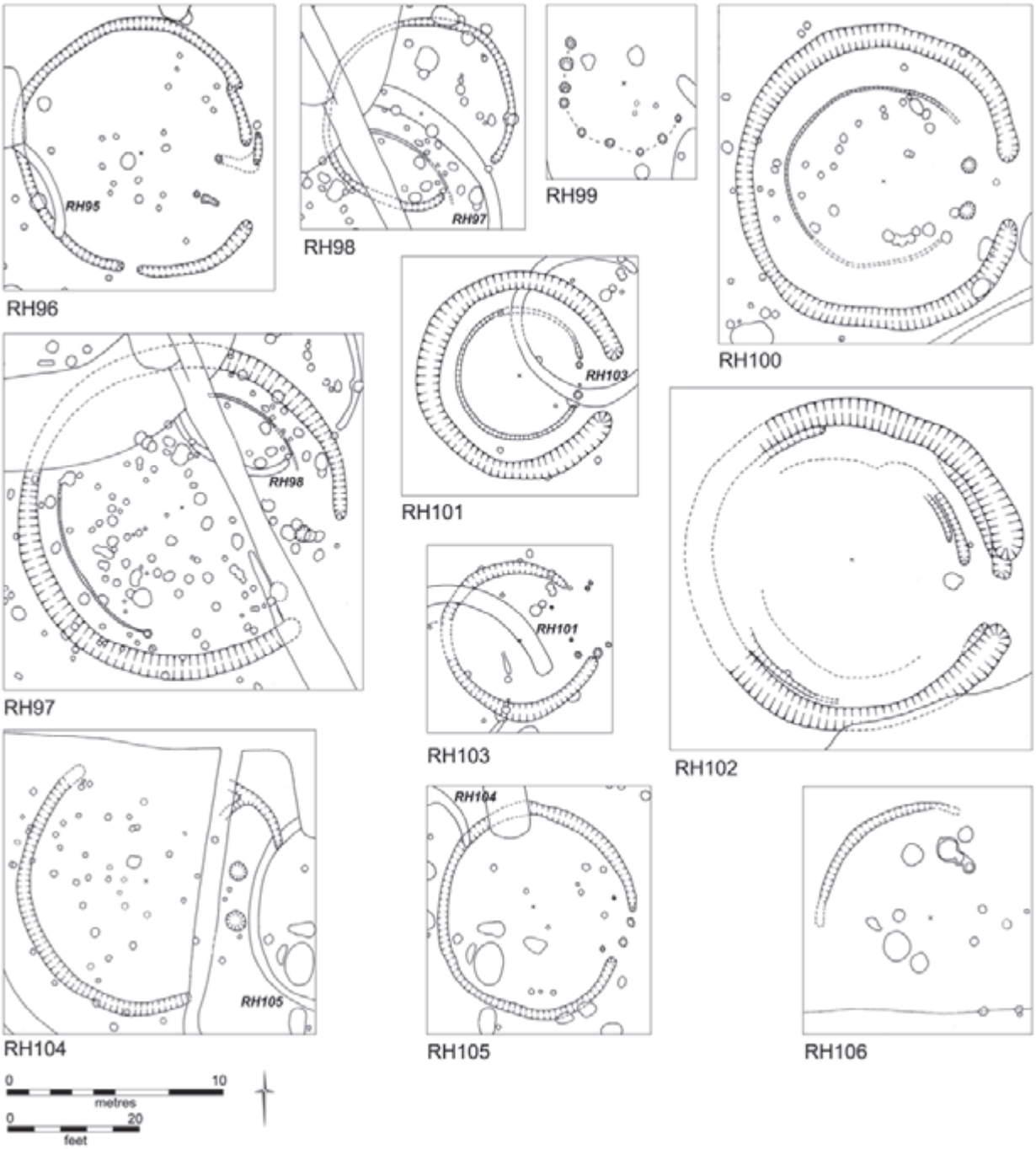


Figure 4.21. Roundhouse Gazetteer Plans (VI).

and apparently not excavated. Some 9m in diameter, with a gully-width of 0.3m, no finds were apparently associated with this structure. Undated.

RH114 (1217 × 132E; Cat. D; Fig. 4.59) – Located between the inner and outer ditches of the Banjo complex, this structure was represented by two gully-arcs, 0.15–0.25m wide and up to 0.15m deep, with the fill of the outer consisting of a sandy, light to medium brown loam; the structure has a projected diameter of *c.* 5.5m. No finds are recorded from either gully. Undated.

RH115 (1000N × 203E; Cat. D; Fig. 4.59) – This comprised three wall-trench lengths, 0.2–0.25m wide and 0.15–0.25m deep; the relationship between these was uncertain due to their shallowness and poor definition. The central gully had a medium brown pebbly loam fill, the innermost gully having very pebbly loam (no data was available for the outer gully). With a projected diameter of *c.* 12.5m, only one sherd of pottery was noted in the field notebook; probable Middle Iron Age date.

RH116 (369N × 521E; Cat. C; Fig. 4.15) – Located to the

northwest of RH111, this consisted of a truncated, arcing soil-mark some 9.75m long (est. diam. *c.* 7m) and *c.* 0.4m wide, with six postholes (unexcavated) within its plan-interior. Located within an area of several inter-cutting and truncated features, the soil-mark was not investigated beyond recording it in plan. Undated.

RH117 (2370N × 943E; Cat. A) – Late Bronze Age (see Chap. 3).

RH118 (2445N × 847E; Cat. A) – Late Bronze Age (see Chap. 3).

RH119 (2110N × 978E; Cat. A) – Late Bronze Age (see Chap. 3).

RH120 (1820N × 730E; Cat. A) – Late Bronze Age (see Chap. 3).

RH121 (162N × -64E; Cat. A; Fig. 4.38) – This consisted of a post-circle as defined by six postholes and pits (0.4–1.0m across). Located to the southwest of RH4, this structure was *c.* 5m in diameter; a possible four-post structure was located to the southwest.

RH122 (84N × 15.5E; Cat. C; Fig. 4.38) – This was located to the southeast of RH1. Consisting of only the slight remains of a gully ([3984]), 0.45m wide, its line would suggest that the original structure was *c.* 4.5m in diameter. Surviving internal features may have included a hearth (*c.* 1.4m long, cut [33]) and four pits/postholes that were between *c.* 0.45 and 0.6m across.

RH123 (340N × -25E; Cat. C; Fig. 4.38) – Located immediately east of RHs 23 and 24, this structure was severely truncated and comprised only the western part of a ring-gully (cuts [14164] & [14167]). The gully of RH123 was up to 1m wide; a portion of another gully also appears to be present here, but it is unclear whether this relates to the same or an earlier structure. No further features were found within the structure.

RH124 (150N × -30E; Cat E; Fig. 4.38) – Some 8.4m in diameter, this structure was located between RH1 and RH4. The width of the eavesgully was *c.* 2.75m. Irregular in plan, this indicates that it either formed the eavesgully of a large building, or enclosed an area within which was located a large roundhouse; however, the limited number of postholes and their small size (largest only 0.3m across) indicates that any wall-gully was very shallow and subsequently truncated.

Aside from their sheer numbers, Mucking's roundhouses are important for their variety, as they span the Late Bronze Age to Early Roman period and include a range of types: post-built, wall-trench and eavesgully. Although their potential as a data-set was fully appreciated by the Joneses (e.g. Jones 1974), it is crucial to recognise that there was no real basis of ascribing any period-specific roundhouse construction techniques, prior to the publication of Little Waltham in 1978 (Drury 1978a & b; see also Pryor 1984). Having said that, within the site's second *Antiquaries Journal* interim it was noted that 'angular houses do not occur before the Belgic period' (Jones 1974, 189). In that paper, moreover, five rectangular '?house trench' settings of probable Belgic attribution were also highlighted (*ibid*., 186). The status of that located at '1360N × 360E' remains ambiguous. The other four such settings were said to occur within the interior of the Double Ditch Enclosure:

> The rectangular ?house trench at 1360N × 360E, though not reliably dated *per se*, lies within a rectangular enclosure containing Belgic pits. Four more similar trenches lie within the double-ditched enclosure (*ibid*., 190).

The latter must surely refer to the square barrows in that area. In confirmation of this, the entry of one of the latter's cremations, Number 1010, stated 'crem in *timber building*' (emphasis added). They are also entitled 'Belgic houses' on an archive plan (see Fig. 4.22) and were explicitly referred to as such in a *Panorama* interim report when discussing the Roman cemetery and cremations within the area: "Whether by accident or design, 3 [cremations] lay almost centrally within each of the three divisions of a rectangular trenched 'house', provisionally dated Belgic" (Jones 1975a, 35). While the Joneses acknowledged that some of the site's 'Iron Age B' roundhouses might have continuity into Belgic/Later Iron Age times, the drive at the time to distinguish rectangular building settings for the period should not be overlooked, and Mucking's Structure 6 (1360N × 360E) featured in Rodwell's 1978 paper that overviewed the evidence of such buildings (fig. 31; see also Harding 1973 and, e.g., Gelling 1977 and Partridge 1981). The excavation in 1970–3 at Kelvedon, Essex of what was held to be a 5 × 21m Late Iron Age rectangular building (Fig. 5.38; Structure 3, Area J: Rodwell 1988, 15–21, figs. 15 & 16) was also influential in this debate, although the status of this would-be 'structure' may itself now require reappraisal in the light of Mucking's evidence (see Chap. 5, *Discussion*).[8]

Mucking's 'special' buildings will be discussed at length below. The most pressing issues that face us here relate to Drury's building-type chronology, given the partial and inconclusive basis of the dating of so many of the site's roundhouses. Do we, in other words, follow the now set regional 'norm' (ignoring in some cases the site's MPX attributions) or admit that Little Waltham was itself contingent upon the then limited exposure-record?

No other single site within Essex has yielded anything like Mucking's number and duration of roundhouse structures, with both Little Waltham (Drury 1978b) and, for example, the much more recent Lodge Farm, St Osyth (Germany 2007), having essentially just Middle Iron Age occupation and without either 'Early' or 'Late' horizons. In Drury's schema Later Bronze Age and Early Iron Age roundhouses were distinguished by being unditched/-gullied post-built structures, with the Linford Site being a key exemplar (see Chap. 1 and Drury 1978a).[9] The early Middle Iron Age (Waltham Period II) was seen as having wall-trench

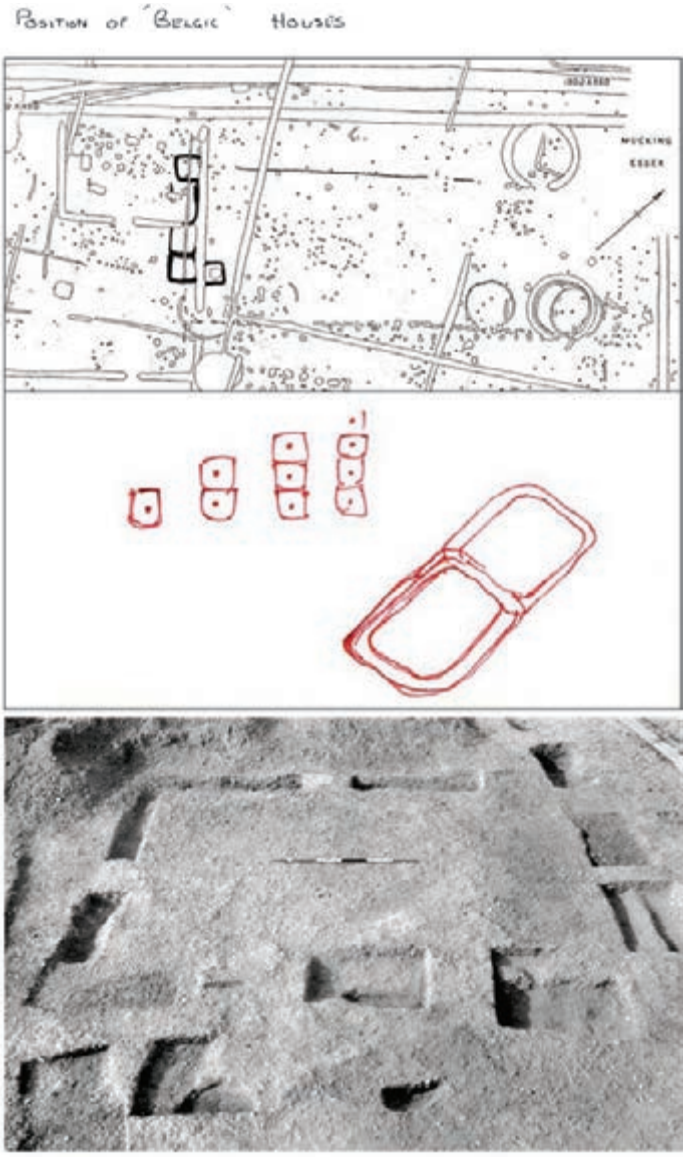


Figure 4.22. 'Belgic houses': top, annotated copy of archive plan indicating original house-attribution of square barrows; middle, card-system sketch showing square 'house'/barrow development sequence (see Fig. 1.13); bottom, trench-built building (Structure 6; Enclosure 13) also identified as a 'Belgic house'.

Table 4.1. Roundhouse-type summary.

A (11)	Min		4.9
	Max		10.1
	Average		6.8
B (15)	Min		2.5
	Max		6.1
	Average		4.0
C (29)	Min		3.4
	Max		11
	Average		6.5
D (24)	Min		5.5
	Max		15.8
	Average		9.3
E (40)	Min	*Wall* (9)	5.8
	Max		13.1
	Average		10.1
	Min	*Eaves* (40)	6.4
	Max		15.5
	Average		11

construction and the later Middle Iron Age as having eavesgully-surrounded buildings (Waltham Period III; 1978b, 31–6). Yet even by the late 1970s, Fengate had 'gullied' Middle/later Bronze Age roundhouses (Pryor 1980a) and, more recently, these have also been found at Stansted Airport (Cooke *et al*. 2008, fig. 4.36). Conversely, the round buildings since ascribed to the Late Iron Age at Elms Farm, Heybridge are apparently of 'ungullied' post-circle type (Atkinson & Preston 1998, 94, fig. 5; see also Gorhambury's Building 4: Neal *et al*. 1990, 25, fig. 27). Most importantly, at Bradley Fen, Whittlesey a series of Early Iron Age wall-trench roundhouses have been excavated (Knight *et al*. forthcoming). The problem facing us in relationship to Mucking's buildings is that once any discrepancy within the set building typology is admitted, how far should this be taken? What is clearly needed are Late Bronze Age–Middle/Late Iron Age sequences in southern Essex with multiple building types to compare Mucking's results against, but these have yet to be forthcoming. Having expressed these caveats, all we can do is turn to the site data at hand, and examine individual building categories at Mucking.

Roundhouse 89 can be considered a 'classic' of the wall-trench-only category D (Fig. 4.23). The diameters of that category's buildings vary from 5.8–15.8m. In most cases these are somewhat smaller than Category E's eavesgullied buildings, of which either Roundhouses 100 or 101 could be cited as near-pristine layouts. In a number of instances these were found with interior wall-trenches surviving, whose diameters ranged from 5.8m to 13.1m; in other words, equivalent to those of Category D (9.3 *vs*. 10.1m ave. diam.; see Table 4.1). That said, there are a few cases where buildings with a single wall-line seem

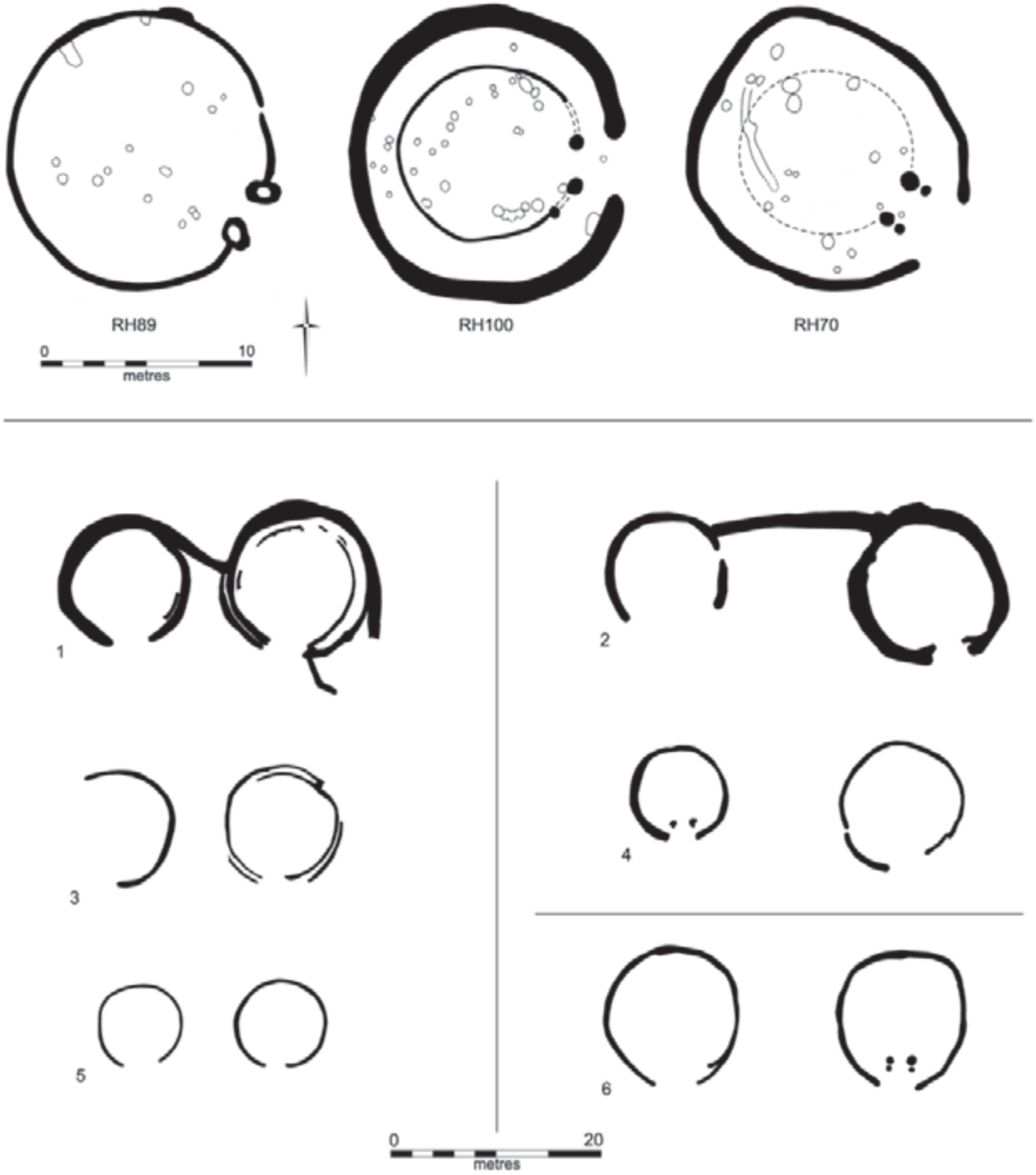


Figure 4.23. Roundhouse Forms: top, wall-line locations (RHs 70, 89 & 100) and, below, paired buildings: 1) Roundhouses 20/24; 2) 86/88; 3) 9/16; 4) 90/96; 5) 68/73; 6) 67/70.

to exceed this size, such as Roundhouse 91 (15.8m), and these all seem to be of Early Iron Age attribution.

In all this, it is imperative that like elements are compared. This is especially important in the case of the Category A post-circle buildings. Generally of pre-Middle Iron Age date,[10] their posts would not have marked their wall-lines as such, but would instead have provided roof-frame support through their interior wall. Accordingly, it can estimated that these posts would have lain 0.5–1.0m inside their wall-lines; when thus factored, their average diameter would increase to *c.* 7.8–9.0m (in other words, almost directly equivalent to that of Category D's wall-trench buildings). There does seem to have been a general

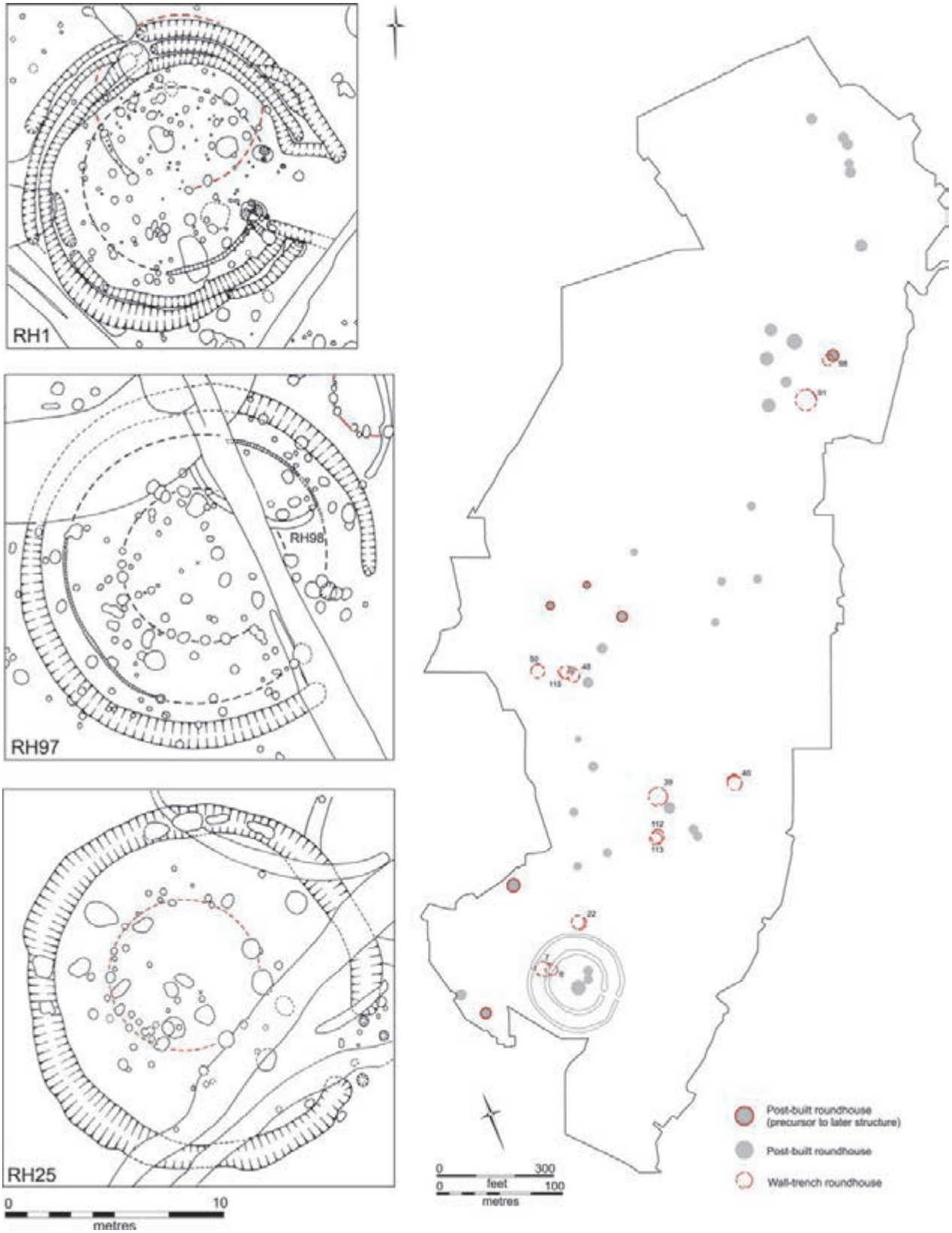


Figure 4.24. Base-plan showing both site-wide location of Early Iron Age wall-trench buildings and, also, possible post-circle roundhouses (right); left, Roundhouses 1, 25 & 97/98 with outline of earlier ('pre-gullied') post-circle buildings indicated.

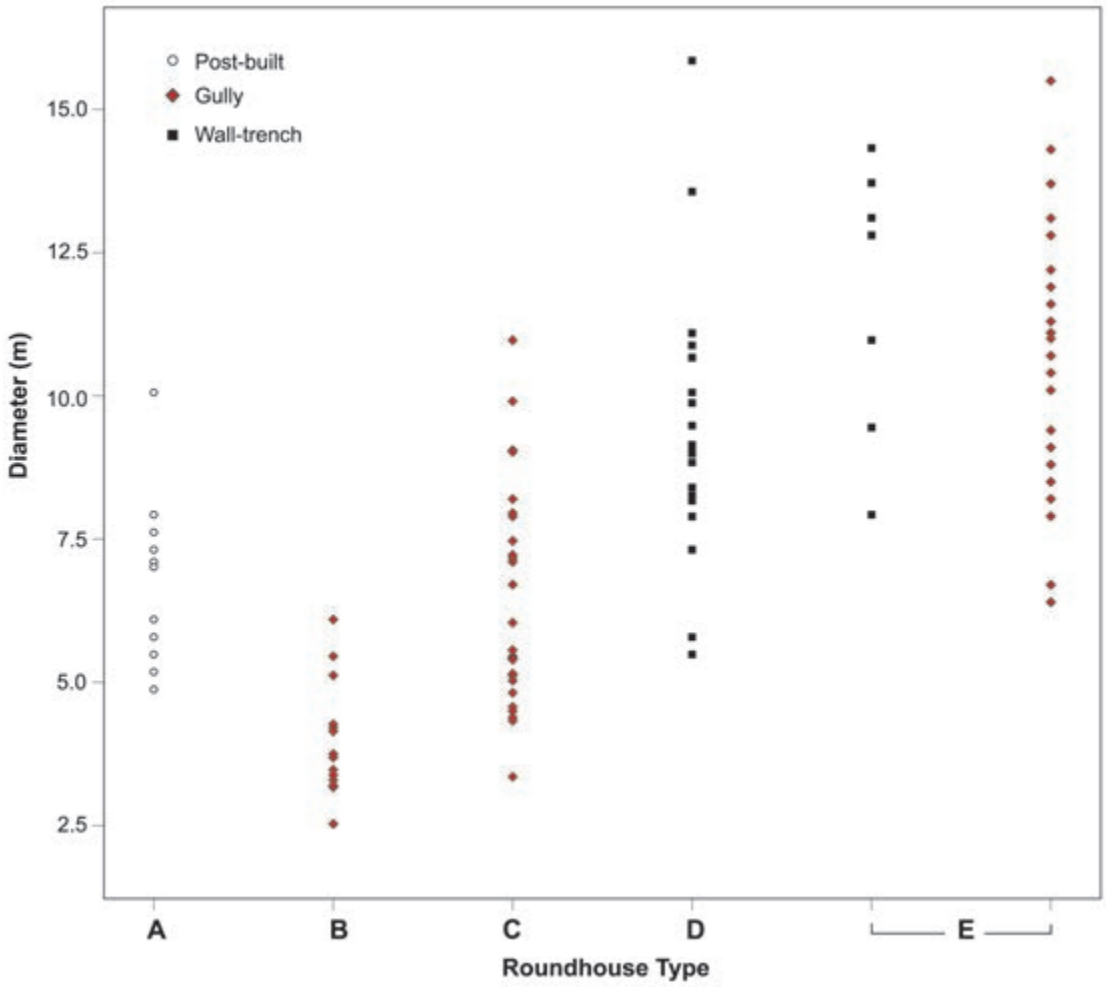


Figure 4.25. Roundhouses by diameter-size and type (note Type E shows both wall-trench and eavesgully diameters).

propensity for the size of the main 'living unit'/ household Iron Age roundhouses to increase over time (as opposed to Category B ancillary structures) and for eavesgullied buildings to supersede those formed only of wall-trenches (e.g. RH97 replacing RH98). This is not, though, a hard-and-fast rule. In the case of the North Enclosure, for example, Roundhouse 89, of wall-trench-only layout (13.6m diam.) appears to be later than the eavesgullied Roundhouse 97 with its *c.* 11.0m wall-trench (Fig. 4.46).

As shown in Figure 4.25, the diameters of the majority of Mucking's wall-trench buildings (D; 79.2%) would fall between 8 and 11.5m; of its definite Category E eavesgullies, most had diameters of 8–12.5m (82.5%) and only five were larger than that (12.5%). When compared, for example, with St Osyth, this seems a low ratio of large buildings, as proportionately twice as many at that site were greater than 12.5m (26.3%/5 out of 19; Germany 2007, table 12). At Little Waltham, 72.2% were larger (13 out of 18; Drury 1978b, table 2), with the largest gullied building being 18m across and the average diameter of its wall-trenches being 13.3m (cf. Mucking's average wall-trench diameter of 9.5m).[11]

As opposed to these exemplars, a number of obviously distinct variants can be identified, especially for Category E buildings. The way in which Roundhouse 1's gullies seem to flank its porch would be a case in point (Figs. 4.16 & 4.24). Although appearing to have some affinity to the eavesgullied entranceways of Roundhouses 67 and 66, they would not be directly equivalent. Another obvious variant would be Roundhouse 67 and 70's more ovoid gully settings, which were elongated southeastwards to encompass the area of their porched doorways (Figs. 4.19 & 4.23). These, in fact, represent a remarkable case of 'matching' buildings (as opposed to complementary side-by-side 'pairs'; see below), and seem to have had an axial relationship across the terrace, albeit lying 40m apart. These two distinctly different buildings are, in fact, so alike that they may either represent the distinct signature of one household's rebuilding or, perhaps less likely, the hallmark of an individual building specialist/carpenter.

Figure 4.26. Roundhouse 1, photographs before (top) and during excavation (below).

Other seeming 'one-offs' include the slightly kinked in-turned terminals of Roundhouse 88's eavesgully and Roundhouse 64's continuous eavesgully. The latter had evidently originally been penannular and interrupted at its doorway, but upon re-cutting its circuit was extended across the entranceway, which presumably was then bridged.

Given the rather inclusive nature of Category C, there seems no point in discussing these structures further. In contrast, the small ancillary settings

of Category B show considerable variation that is assumed to be significant. This includes the near-monumental scale of the four-poster granaries that were set within the penannular ditches of Roundhouses 56 and 58 (presumably reflecting their circular roofs), with Roundhouse 78 perhaps being a continuous-gullied version of the same (Fig. 4.64). Though all three of these are probably of Conquest Period/Early Roman date, Roundhouses 41–43 might well represent either a similar structure in which the four-poster did not register or else gully-surrounded haystacks (RH46 might also represent the same, but with a subsequent off-centre four-poster within its interior).

Roundhouses 28 and 31 appeared to have had a similar 'equivalence' in terms of their horseshoe-shaped ditch settings of small diameter, with wide entrances. That said, while the former was oriented to the east, Number 31 fronted southward; it also had an interior post-circle set close to its ditch (perhaps shed-related), whereas Roundhouse 28's interior postholes suggest a four-poster or the like.

Perhaps the most individually distinct setting on the site was Roundhouse 75/76's small rectangular-set 'circle' (Fig. 4.64). Given its phasing situation within the 'Belgic Banjo', it may simply have pertained to further grain storage – and, thereby, just have been a variant on Roundhouse 28, 29 and 31's 'poster' settings – but it may have marked a small shrine structure; whichever the case, it is probably of Early Roman date.

Although not without exception, based on the phasing sequences of the enclosures – particularly of the North and ABC Enclosures – it would seem that larger diameter roundhouses generally superseded smaller buildings. This is apparent, for example, in the succession of Roundhouse 98 by 97 in the North Enclosure (Figs. 4.46 & 4.48) and the ABC Roundhouses 15/17/19 (and RHs 21 & 23) by Roundhouse 20 and, by ditch-linked association, Roundhouse 24 (Fig. 4.38). This though was clearly not a universal rule and it certainly is not applicable to the small specialist structures, such as the ditched haystacks and the 'poster' granaries. Brudenell's dating indicates that there were earlier Middle Iron Age roundhouses of larger diameter (e.g. RHs 51, 64 & 97: 13–15.45m diam.), just as there were smaller diameter 'later' ones (e.g. RH101: 8m diam.). Similarly, the largest houses – Roundhouses 39 (14.15m diam.) and 91 (*c.* 15.8m diam.) – would actually seem to have been of Early Iron Age date.

A number of the roundhouses appear relatively 'pristine', with little or no evidence of rebuilding or eavesgully re-cutting (e.g. RHs 3, 100 & 105). In contrast, others saw intense redefinition, with evidence of their eavesgullies being substantially re-cut two (RHs 89 & 82) and three times (RHs 1, 24 & 102). In some cases the stratigraphic/phasing evidence is such that a sequence of up to three buildings can be inferred (i.e. not directly upon each other), with the North Enclosure's Roundhouse 98/97/89 series being the most obvious (Figs. 4.46 & 4.48). In other instances, intense intercutting sequences were apparent: four cases of three-building sequences (RHs 6–8; RHs 20–1 & 23; RHs 25, 27 & 30; RHs 92, 93 & 95) and one of four (RHs 15, 17, 19 & 20). Although we cannot be absolutely certain that this reflects direct household building succession, it is nevertheless reasonable to infer that certain building locations may have been maintained for upwards of 100 years or more.

Only in very few instances did any of the posthole settings within the roundhouses display obvious structural patterning. Of the Early Iron Age-ascribed buildings Roundhouse 40 offers the most coherent plan, with its ring of regularly spaced postholes set 1–1.5m inside its wall-trench (Fig. 4.9). For the later structures, this accolade would have to go to Roundhouse 97, its post-circle lying 2–3.0m interior to its wall-line (see Fig. 4.24). Yet, in some instances, the building-interior postholes actually appear to relate to other structures altogether. In the case of Roundhouses 21, 46 and 65 these are four-posters. In others, the occurrence of 'arcs' of what were probably earlier post-built roundhouses are apparent, though their interpretation is not aided by the fact that only a limited number of these interior features were actually excavated. Three such examples are illustrated in Figure 4.24, which includes off-centre posthole 'circles' within Roundhouses 1, 25 and 98. In the first of these it is not so much an earlier post-circle that is apparent, but a general higher density of postholes throughout its northern interior which appears to coincide with a length of wall-trench interrupted by a southern doorway. The other such roundhouses possibly evidencing earlier, off-centre post-circles are Numbers 64, 66 and 69, while Roundhouses 50/51 may indicate building succession.

In the eavesgully-surrounded buildings, it was usually only the doorway postholes that were clearly defined. While for the most part these only consisted of one opposed pair (e.g. RHs 79, 88 & 100), a number had double pairs suggesting shallow porchways (e.g. RHs 70, 77 & 83; Fig. 4.23), and only in the case of Roundhouse 69 was a triple pair porchway evident (*c.* 1.5m deep; RH97 might, though, have had a similar arrangement).

Entranceway locations could be distinguished with some confidence in 54 of the buildings. Of these, the majority were oriented to the southeast (42/78%), three each towards the east and south (11%), five to the northeast (9%), with a single entrance towards the southwest (RH74). This broadly eastern-sector orientation was clearly typical of the period's roundhouse building traditions (see e.g. Oswald

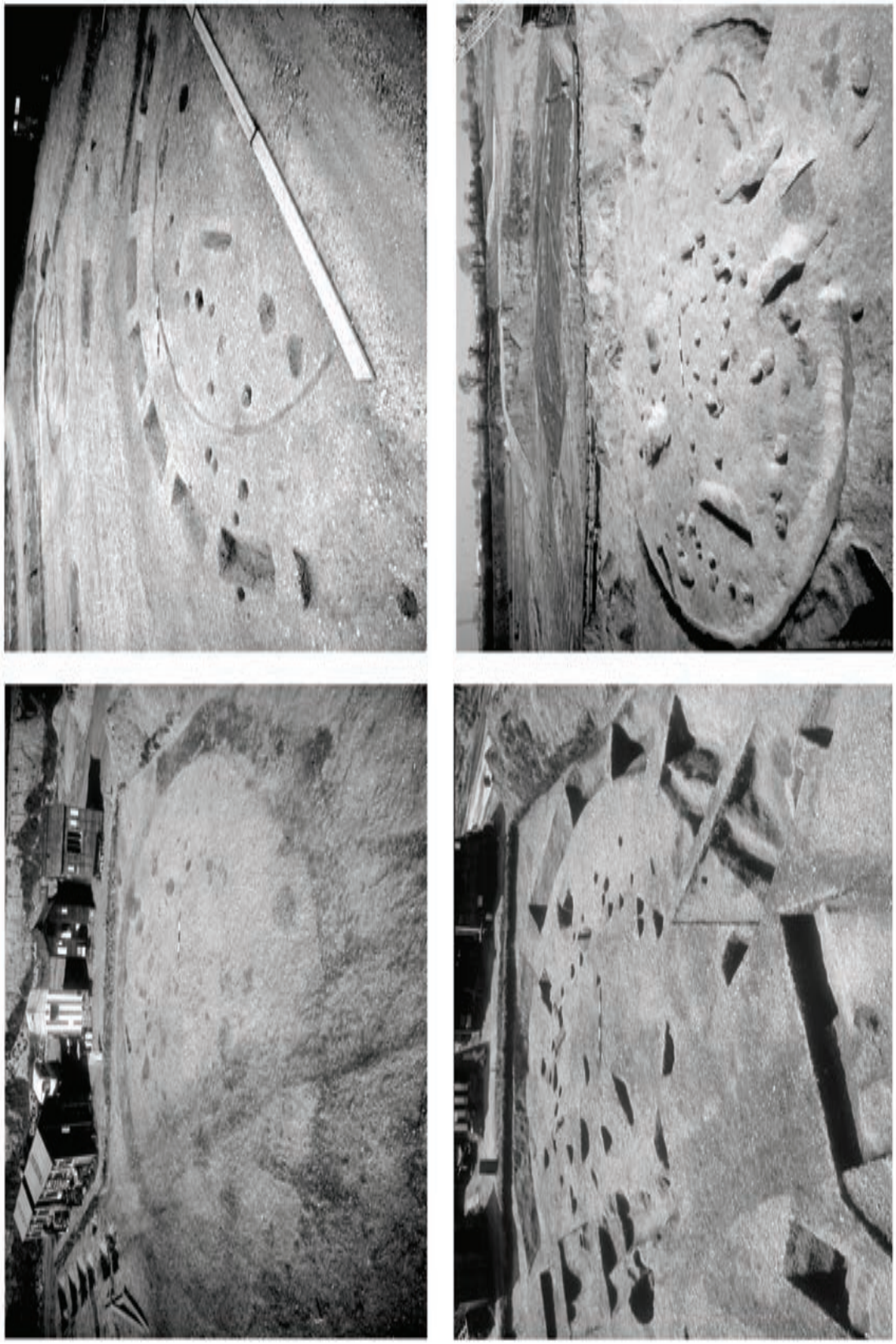


Figure 4.27. Roundhouse photographs: left, No. 25, photographs before (top) and during excavation (below): right, Roundhouse 100 (top) and, below, No. 69.

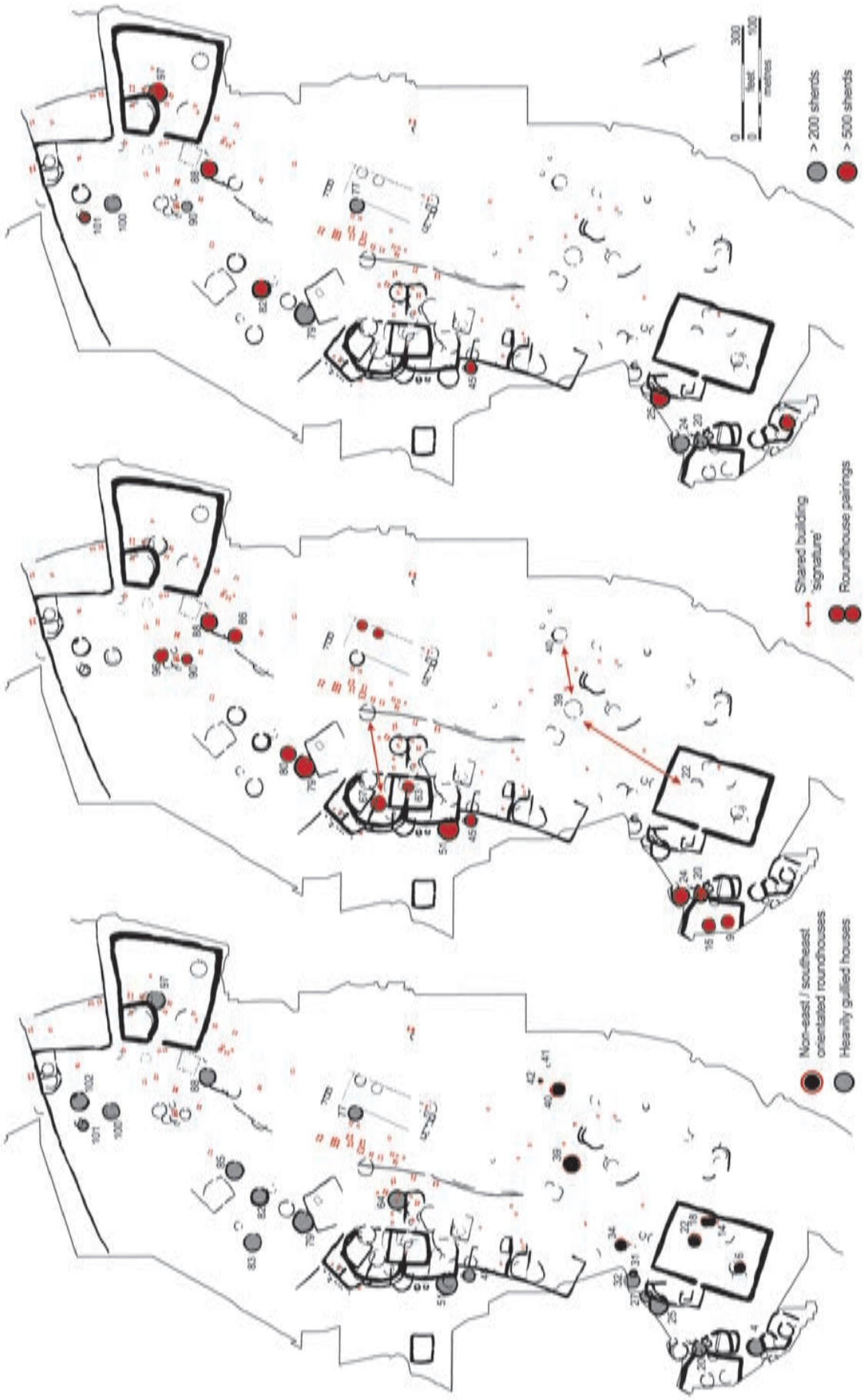


Figure 4.28. Roundhouse distributions, showing orientation, 'pairings' and finds density, etc.

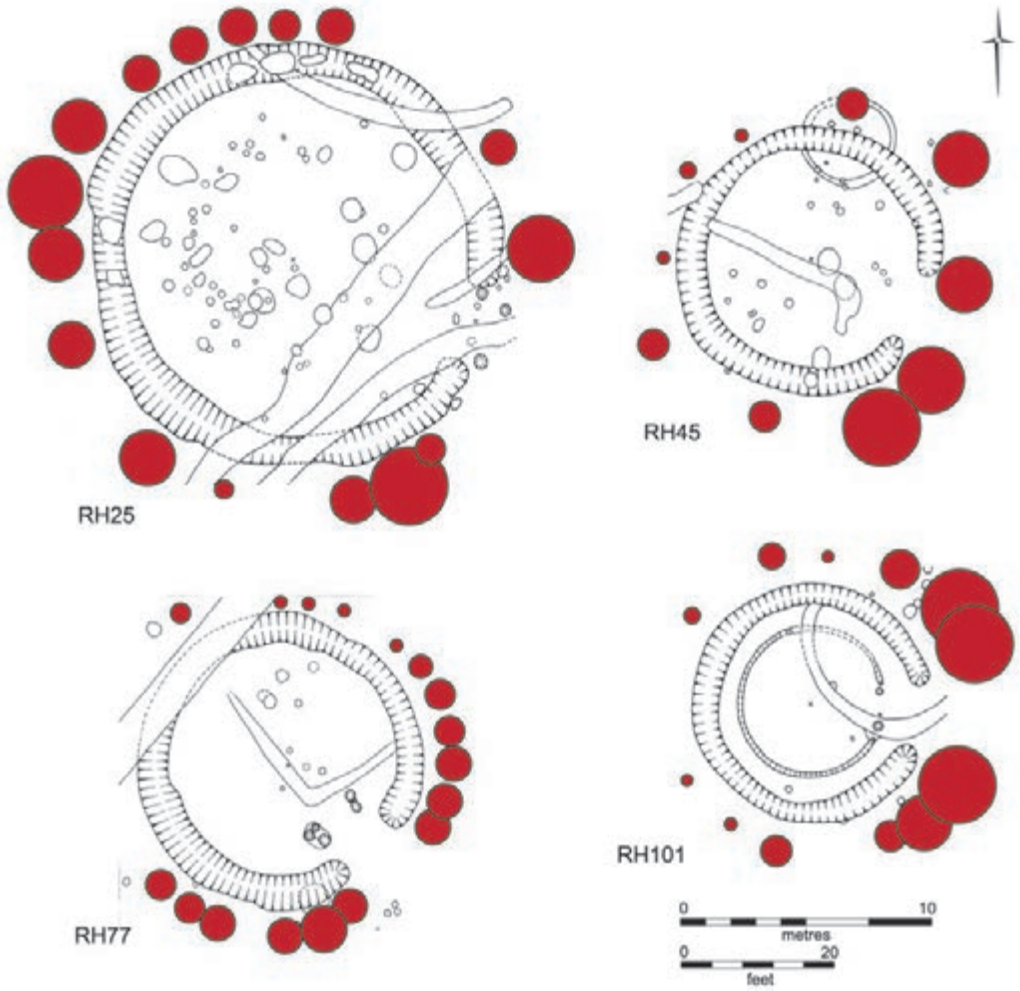


Figure 4.29. Per-metre distribution of pottery (by weight) of selected roundhouse eavesgullies (from EH/BM-phase archive binder that includes many other such figures; but not, unfortunately, a key linking circle size to weight); note that while Roundhouses 45, 77 and 101 show typical doorway-focused distributions, the plot for RH25 suggests more complex deposition around its rear.

1997), and would have had both obvious functional benefits and, perhaps, cognitive associations (e.g. Parker Pearson 1996; see also Evans 1997). There are a number of structures that evidently did not have a generically eastward orientation. As is apparent on Figure 4.28 (left), none of these were definitely enclosure-related and all lay within the southern third of the site. Significantly, and as outlined above, almost all of these seem of Early Iron Age date.

Uniquely, in the case of Roundhouse 13 a distinct arc of densely set stakeholes lay 0.3–0.5m inside the western sector of its eavesgully (Fig. 4.16). By reference to Little Waltham's buildings (Drury 1978b, figs. 67.4–5), these may mark the ground-set ends of roof-rafters. If so, based on Drury's reconstructions, the structure may have been of 'solid' turf wall-construction. An arc of what appears to have been postholes was similarly distinguished *c.* 0.5m within the eastern interior of Roundhouse 31 (Fig. 4.17). Seemingly much more robust than Roundhouse 13's stakes, these were probably wall-related (i.e. set vertically upright), rather than marking the eaves-end.

In at least 10 instances wall-line troughs were distinguished on the interior of the eavesgullies. Roundhouses 71, 79, 97, 100 and 101 were the most complete, with half or more of their circles surviving, the remainder being just short fragments (RHs 1, 24, 69, 83 & 102; the status of RH16 being ambiguous as to whether it constituted double-set or replaced wall-lines). These were slight features (0.1–0.25m wide) and, at times, amounted to little more than 'ghost' traces. Where there was sufficient survival of their arcs, they often connected within the innermost doorway postholes and lay 0.5–1.2m inside the line of their much more substantial eavesgully ditches (e.g. Figs. 4.23–4). Only in the case of Roundhouse 100 did this wall-to-eavesgully interval vary, being much greater at 1.6–2.0m distance (Fig. 4.23).

As shown on Figure 4.28 (left), a number of buildings in Category E were distinguished by the

presence of very robust eavesgullies (e.g. RHs 4, 20, 51 & 80). This assignation is somewhat subjective: generally defined as having ditches 1.0m or greater across in a single-phase profile. Although in some instances a building's cumulative re-cutting would exceed this width (e.g. RH1), individually their ditches were of quite minor proportions and they would not be classified as robust. As a 'type' the robustly gullied structures display a number of similarities. One is that they largely date to the later Middle Iron Age, with Roundhouses 51 and 87 being earlier exceptions. Another is that they were generally not situated in enclosures, being either isolated or else pre- or post-dating enclosures (e.g. RHs 50 & 20 respectively), with Roundhouse 97 as the only obvious exception. It could be argued that their 'significant' eavesgullying itself afforded a degree of building enclosure and was presumably intended to keep large stock (i.e. cattle) away from their overhanging eaves-rafters. (This interpretation would then also extend to RH97's heavy ditching if the North Enclosure – in which it was centrally located and clearly related – had a distinct stock function; see below.)

The most striking variant to this robustly gullied/non-enclosed building propensity is Roundhouse 70, whose eavesgully was not only distinctly elongated but also relatively slight (Figs. 4.19 & 4.23). This, in part, may be attributable to its possible special status through its association with The Plaza's 'ceremonial ground' (see below). Yet, based on both its arguably later attribution and direct interrelationship with the Banjo's main buildings (particularly, its 'signature pairing' with RH67), such minor gullying might be considered a distinctly Late/later Iron Age trait. Another variant may have been wall-trench-only construction (i.e. non-gullied) in the case of Roundhouses 68, 73 and 89 (and, possibly, RH110). As regards these, what might be crucial is that they all shared various forms of fence-line 'screening'.

In two instances the site's roundhouses were directly ditch-linked and, thereby, paired. The most obvious is case is Roundhouses 86/88, which lay apparently isolated adjacent to the North Enclosure (Figs. 4.23, 4.28 centre & 4.48). Situated 15m apart, they were joined by a ditch spanning the western sides of their gullies. Both are broadly dated to the Middle Iron Age, with Brudenell assigning Roundhouse 88 to the 'later' Middle Iron Age; clearly they seem related and contemporary. Although the differences in their diameters were not great – Roundhouse 86, 10.5m; Roundhouse 88, 11.5m – the discrepancies in their recovered finds (13 *vs*. 826 sherds respectively) could suggest that they were a combined single household unit, with the smaller building being ancillary to the main residential unit (see e.g. Evans & Hodder 2006b, 270–1 and Lambrick & Robinson 2009, 150–1, fig. 5.9).

The other direct building 'linkage', Roundhouses 20/24, occurred as part of the ABC Enclosures compound (Figs. 4.23, 4.28 & 4.38). Assigned to the later Middle Iron Age, while their size did not differ markedly (*c.* 10.65m *vs*. 11.2m respectively), it was the smaller, Roundhouse 20, that yielded more finds (473 *vs*. 280 sherds). These structures clearly truncated and 'filled' the entranceway of that enclosure complex's main sub-square compound (No. 4) and definitely post-dated its usage. As such, they may well represent a direct replacement of the two 'unlinked' buildings within that compound's central interior, Roundhouses 9/16, and thereby constitute another 'pair' (Fig. 4.23). Having comparable diameters – 10.5m and 10.2m respectively – the finds reported from Roundhouses 9/16 are unfortunately so negligible (only four and eight sherds) as to preclude any meaningful comparison.[12]

Across the remainder of the site, other non-ditch-linked, potential pairings of small and large buildings occurred. Roundhouses 45 and 51 (8.8m & 15.45m, respectively) would be the only ones of earlier Middle Iron Age attribution, with two other probable pairs of later date (RHs 79/80; RHs 90/96); Roundhouses 100/102 would be another possible candidate. Of these, arguably the most convincing pair is Roundhouses 90 and 96 (Fig. 4.22) as their side-by-side arrangement seems to match Roundhouse 86/88's ditched pairing, which lies just to the east. Roundhouses 68 and 73 constitute a final pairing. While being side-by-side and both having a close relationship to The Plaza's southern fence-line (see Fig. 4.78), they differ in that their 8.2m-diameter wall-trenches directly matched each other.

Drawing upon MPX's roundhouse pro-forma records, some 7500 sherds of later prehistoric pottery could be directly attributed. Buildings range from having 1–548 sherds, with an overall average of *c.* 103; not surprisingly, the large eavesgully, Category E buildings generally had the highest values, averaging 168 sherds. Equally unsurprisingly is the fact that there are significant discrepancies when their values are compared to those in Brudenell's Tables 4.11 and 4.12 for the 21 buildings whose assemblages were studied in detail. For the most part Brudenell's figures are higher by a factor of three or more, averaging *c.* 335 sherds compared to the MPX average of 134 sherds. Roundhouse 25 had the greatest number at 928 (compared to the 367 sherds recorded by MPX).

Such discrepancies within the buildings' pottery counts certainly do little to encourage comparison, at least with any conviction. Taken as a whole, the impression is that the site's roundhouse pottery assemblages seem relatively small. Based on the combined data-sets, and as shown on Figure 4.28 (right), only seven would have in excess of 500 sherds, with just 13 having more than *c.* 200. Based

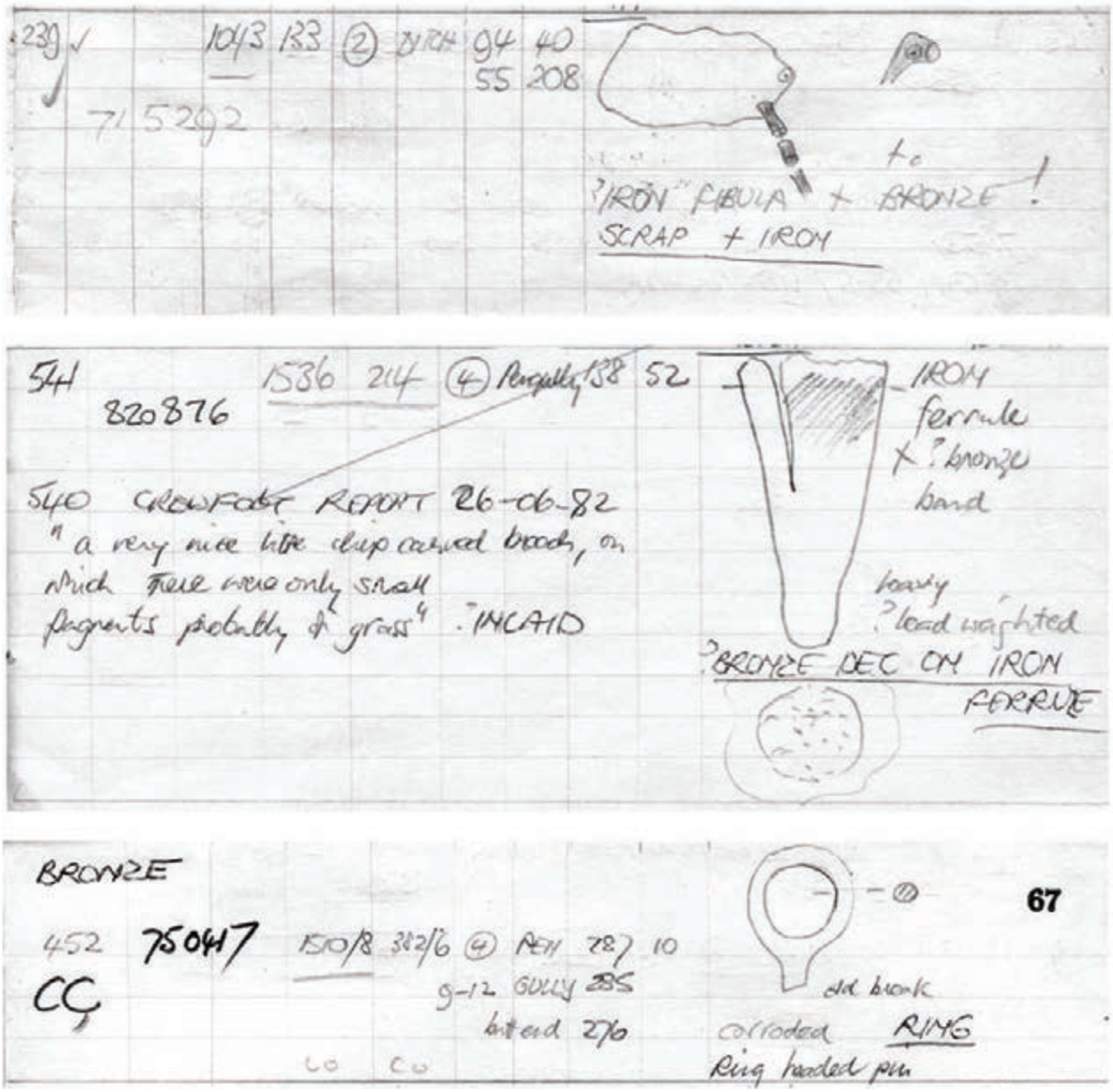


Figure 4.30. Roundhouse 'curios', notebook small finds illustrations: top, Roundhouse 51, ?fibula pieces and iron sheet; middle, Roundhouse 83, bronze decorated iron ferrule ('heavy ? lead weighted'; note: inset Crowfoot comment relates to the Anglo-Saxon brooch of the previous entry); below, Roundhouse 82, probable bronze ring-headed pin (see Appleby, Chap. 5, Copper Alloy Finds).

on Evans' experience of digging both the Haddenham V Iron Age compound and the Wardy Hill enclosure (Evans & Hodder 2006b, chap. 5; Evans 2003), the values for Roundhouses 25, 88 and 97 of 928, 826 and 777 sherds respectively would all seem reasonable. Yet, for many of the other structures numbers seem meagre and it would usually be expected that such large eavesgullied buildings as Roundhouses 4, 51, 64, 83, 102 and 104 should each produce far more than they did (RH85 with only 163 sherds and wall-trench building RH89 with 179 sherds).

Of those buildings with higher levels of finds, none were directly enclosure-related, aside from Roundhouses 1 and 97 (RHs 20 & 24 post-dating the use of the ABC Enclosures). It is noteworthy that no high values were associated with any buildings in the Banjo.

The values from Mucking can be compared to those from other sites (Table 4.2). These are only very rough estimates, as they also include other non-house contexts from the sites listed; this, in part, is due to the fact that it is so difficult to find building-specific evaluation of site assemblages (see, though, Evans & Hodder 2006b, 142–4; Evans 2003, 208–12). They

Table 4.2. Comparative sherd/'house' densities (denotes where assemblage weight is provided only, with their numbers estimated based on the assumption of a mean sherd weight of 10g; ** St Osyth's 3784 sherds/50.6kg values have been doubled to compensate for the site's low excavation-sample; bracketed number indicates non-residential buildings).*

	No. of Buildings	Total No. Sherds	Ratio
HAD V	4 (+3)	15,105 (174kg)	1/3776
Little Waltham	18	50,000* (500kg)	1/2778
Werrington (Period 1)	2	2926* (29kg)	1/1463
Wardy Hill	4 (+2)	5329 (61kg)	1/1332
Mingies Ditch	5 (+2)	3098	1/620
St Osyth	19	7568**	1/398
Cats Water	*c.* 45 (+12)	11,600	1/257
Heathrow, T5, Perry Oaks	18	3192 (20kg)	1/177
Farmoor	13?	1275	1/98

do, nevertheless, provide a rough measure and, by this, Mucking's figures would fall between those of Farmoor and Heathrow. Farmoor, situated on the Thames floodplain, was interpreted as having a non-permanent pastoral function (Lambrick & Robinson 1979), which may account for its low values. If we just take the pottery numbers from Heathrow's 18 roundhouse gullies – 1035 sherds – this would average 57.5 per building, with only four having more than 50 sherds and just one having more than 150. This building, Penannular Gully 8 (diam. 15m), still yielded only 350 sherds and, held to be 'special', was further distinguished by being the only roundhouse at Heathrow to have a northwestern entranceway (Framework Archaeology 2006, 172–87, figs. 4.6, 4.7 & 4.10 and table 4.3).

Figure 4.29 serves to case study pottery distributions within the eavesgullies of four of the site's buildings (its caption outlines the limitations of the relevant data-set). Otherwise, the most marked building-related distribution of specific finds categories (further discussed below: see *North Enclosure*), is the metalworking debris associated with Roundhouse 104, whose quantities suggest a dedicated or specialist function (Fig. 4.51).[13] As is evident on Figure 3.2, briquetage was recovered from pits within the interior of Roundhouses 88, 105 and 110, but in all cases these seem to predate the buildings and were probably of Late Bronze Age date (such material also served as post-packing for 'Poster' 91's timbers). La Tène-style decorated sherds were associated with Roundhouses 4, 24, 69 and 110, and were also recovered from the immediate vicinity of Roundhouses 90/96 and 104. Late Iron Age brooches were forthcoming from the areas of Roundhouses 69, 83 and 110 (and beside RH25 within Enclosure 5's ditch; Fig. 4.4), with later, Conquest Period/mid–late first-century AD types from the immediate area of Roundhouses 51 and 77 (see also Fig. 4.30). What was probably a bronze ring-headed pin was recovered from the gully of Roundhouse 82 (see Appleby, Chap. 5, below and Fig. 4.30); a cast copper alloy stem with a ring terminal and iron collar is also reported from Roundhouse 21, with a latch-lifter recovered from Roundhouse 102 (see Mould, Chap. 5, Fe 3488 & 3375).

As to the more generic artefact types, Belgic bricks (see Barford, Chap. 5 below) were recovered in association with Roundhouses 24, 25, 27, 64, 67, 83 and 101; Roundhouses 91 and 110 had spindlewhorls, with triangular loomwieghts coming from the area of Roundhouses 1, 4, 20, 24, 25, 27, 32, 51, 63, 64, 66, 67, 69, 79, 80, 82, 88, 101/103 and 105 (see Fig. 5.16).

Rectangular Posthole Structures

As outlined in the first chapter, it is only fitting that the 1984 draft text of Margaret Jones and Paul Barford appears here. It is presumed that the manuscript was intended as another stand-alone interim notice. Despite a certain 'roughness', its inclusion is appropriate on two grounds. First, while not reflecting full awareness of the degree to which such raised granary-type settings featured in Late Bronze Age occupation (basically assuming that they were all of Iron Age attribution), it nevertheless remains a reasonable summary. Second, is for what its highlighted 'gaps' tells of MPX working procedures. As indicated, there was to be series of calculations that the site's on-going computerisation was meant to supply. Not only does this attest to the extent of their faith and reliance upon the technology, but also that, within the project's logic of types (see Chap. 1), categories of data were then being worked up before supporting statistics were available.

Rectangular Posthole Settings (Margaret Jones, with a contribution by Paul Barford)[14]

Conspicuous in the patterns in the distribution of [the site's] ?,000s of (**computer**) postholes are square or rectangular settings/structures. They are to be found from one end of the site to the other (Fig. 4.31) and three potential groups

can be discerned. Though most settings are of postholes there are at least ?three settings of post pits. The provisional total is ?49,[15] but there could have been more structures in the incompletely investigated areas at the beginning of the excavation (between 300 grid S and 700 grid N). About one third of the total seems to be from a group occupying a 300' (91.4m) long zone in an area which contains few other features.[16] Figure 4.33 shows that this group shares a common orientation also, which is however, approximately the same in most of the Mucking structures. The determining factor is not apparent. It might relate to the direction of slope or could reflect the prevailing wind.

Most settings were apparent on excavation, especially in open areas (cf. the granary at Wijster; van Es 1967, 87). Apart from their presenting a rectangular plan, there was often a similarity in posthole size and fill. Two settings contained a pink fill distinctive to Mucking though not yet explained (110N × 210E and 2000N × 705E). The number of postholes making up each structure is usually four, though four examples of six and one of nine occur. Figure 4.32 shows one of each. Of the other six-posters, two are on the site of the South Rings (110N × 210E and 290N × 290E) and another lies in the 300' zone. (Other posthole settings are explained as rectangular ground level buildings belonging to the Saxon settlement or as fences.)

The settings measurements are:

Computer
- average distance between centres: giving longest and shortest
- average area between centres: giving largest and smallest
- average diameter of holes
- average diameter of pits
- average diameter of ghost posts
- average orientation and extreme range
- printout of finds
- type of fill.

The date of these structures can be considered from vertical and horizontal stratigraphy, from finds within the posthole fills, and external radiocarbon dating.

Vertical stratigraphy:

320N × 80E	one of four postholes cut by an ? Early RB ditch
110N × 210	E three of six postholes cut by RB ditch
1270N × 550E	two of four postholes cut by RB ditch
1270N × 500E	one of four postholes cut by post-Roman ditch
1310N × 500E	two of nine postholes cut by post-Roman ditch
1827N × 668E	two of four postholes cut by Saxon hut 123
1160N × 470E	two of four postholes cut by 'modern' ditch and cutting a pit
765N × 520E	one of four postholes cut by Cremation 592 and cutting a pit (760N × 520E).[17]

Horizontal stratigraphy can be suggested but not proved. The '300' long zone' of structures mentioned above (Fig. 4.33) offers the best chance of considering spatial relationships. Twelve of these settings seem to be clearly related by their consistent alignment parallel to the Double Ditch Enclosure. All these settings respect each others' siting, while four structures even form a straight line. If such a long rectangle had been found in an entirely prehistoric site one might have argued for a longhouse interpretation as at Crickley Hill, Glos. (Dixon 1973). Seven other settings also might belong to this group. A case might be made here for a situation comparable to Danebury, Hants. where structures are ranged along a 'street'. Other straight lines of three or more settings are also discernable. Three settings lie between the inner and outer ditches of the South Rings: two are six-posters (110N × 210E and 290N × 290E) and one four-poster, but except possibly for the pink fill, no other factors suggest they relate to this Later Bronze Age enclosure.

On a wider scale, one needs to consider if there is any relationship between the distribution of post structures and any other feature or artefact. Until site plots are available however, one can only suggest that the structures might relate to the territory of the roundhouses, with the linear group fringing the main roundhouse concentration (between RH44 & 82). In a few instances posthole structures lie close to roundhouses (e.g. RH64, 70, 77 & 90), yet the proportion seems too small to postulate a customary functional relationship.

There are two considerations regarding finds. One is that in common with most postholes at Mucking, their fills contain few finds anyway; the other is the difficulty of knowing whether or not they are residual. An exceptional posthole find came from the radiocarbon dated six-poster (1740N × 580E; see below). What must have been a complete pot of slack 'S'-profile, ring-base and cross on base, evidently fell into the burning post void, broke and became vitrified on both fractured and vessel surfaces. In the same posthole (1747N × 576E) were rim sherds of vesicular (shell) fabric.[18] (Analysis of finds will not be possible until computerised data is available.) These structures need also to be compared with intra-site distributions of intrinsically datable finds and their siting in relation to settlement concentrations considered.

The fourth aspect of dating is also the most informative. Two settings – one of nine postholes (1310N × 500E; Figs. 4.32–3) and the one of six (1740N × 580E: Fig. 4.32) already mentioned seem to have been destroyed by fire. In both settings there were charred outlines to the post 'ghosts', while in the former the entire gravel surface between the postholes was reddened. Bearing in mind that this surface lay beneath a depth of approximately 0.4m subsoil and topsoil, this must imply considerable heat.

Two samples were obtained for radiocarbon dating and since they came from the outside edges of posts their dates cannot be far from the felling dates. They are:

Nine-poster	(1309N × 514E; Har-1632) 2020±70 – 70BC (uncalibrated; PS56)
Six-poster	(1740N × 580E; Har-1633) 2090±70 – 140BC (uncalibrated; PS73).[19]

Direct evidence of function is lacking. As on most sites (Gent 1983, 249, table 1) what evidence

does exist is invariably to be sought in the postholes or pits. From the large size of timbers deduced from charred outlines (as much as 0.3m across in the more massive settings), and from the 'ghost posts', it is clear that in some cases considerable structures must be involved. This is consistent also with the extensive deeply reddened area of burning associated with the radiocarbon dated nine-poster. The combustible material could of course have included the contents. Further evidence of structure and its conflagration comes from fragments of what seems to be burnt wall daub with wattle impressions found in both radiocarbon dated settings. Some were even vitrified (see Barford, below).

In an interim publication (Jones 1974, 190) a granary/storehouse interpretation was suggested for these posthole settings and their proximity to possible alternative underground storage in pits was noted. There has been no reason subsequently to doubt this interpretation, which is developed in the most recent review of such structures mentioned above (Gent 1983). It may be remarked that no grain was found associated with the Mucking structures. This is the case however with most other sites (*ibid.*, 249). It may be noted that Corndrier III at Mucking did produce charred sprouted wheat (*Triticum spelta*; see Roman vol.).

One site in particular, Danebury hillfort, Hants. (Cunliffe 1983, 109) shares several characteristics with Mucking. The Danebury structures can be grouped into smaller four-posters and larger settings, which include those with six and nine posts. Four-posters seem to be earlier, predating some storage pits, while the larger settings belong to later occupation. Some of the Danebury structures as mentioned above are in rows 'arranged along streets'. An amended function is suggested for some settings: that the earlier, smaller settings are rick platforms and only the larger, granaries. Wall daub was found at Danebury also, especially near to granaries which, it is suggested, were elevated framed buildings walled with wattle panels daubed with clay.

Gent's review of some 500 settings recorded from some 100 British prehistoric sites, as well as Roman and Continental sites, includes other points relevant to the Mucking granaries. One is that as already mentioned, grain is rarely found in association, whether charred or waterlogged. Although he refers to several settings destroyed by fire, no other site producing radiocarbon dates is quoted. Gent also remarks that settings 'seem gradually to have increased in size with time' and a nine-poster, rare in Britain, is quoted from a Roman site (Gorhambury; Gent 1983, 250). (The radiocarbon date of 70BC uncalibrated for the Mucking nine-poster is however much earlier). Since structures of four, six, nine, 12 and even 20 posts occur on Late Roman sites on the Continent (eg. Wijster; van Es 1967 and Zimmermann 1978) a migration dating must be considered for the Mucking examples, although there is nothing to suggest they are later than prehistoric.

Two further points should be considered. The first concerns evidence for grain or similar storage at non-prehistoric Mucking; the second relates to similar structures in Essex. Non-prehistoric means in effect Roman or Migration period. Roman grain storage is evidenced by a post in trench-building within the Double Ditched Enclosure. This was regarded by Manning as a civilian granary built on military principles, there being only one other British site where such structures are known. (Manning 1975, 129; Morris 1979, 32). In view of the very extensive early Saxon settlement at Mucking, granaries of this period also might have been expected. At two Continental sites where settlement might have overlapped in time with Mucking such granaries were common. At Wijster well over a hundred four- to 12-posters are recorded (van Es 1967, 90); at Flogeln over sixty four- to 20-posters (Zimmermann 1978, 154). However none later than prehistoric has been recognised at Mucking.

Posthole structures are recorded from other Essex sites and from the nearby Mucking North Ring:

Chadwell St. Mary (Manning 1962, 129) – No individual details are given, but it is suggested that postholes in 'small clusters, confused and closely packed' and 'supported storage structures for grain'.

East Tilbury, Rainbow Wood (Potter 1974) – Four posthole complexes form a square. It is suggested that the posthole multiplication is caused by buttress posts. A date of fifth–third century BC is suggested.

Heybridge (Drury 1978a, 46, fig. 3) – One four-post structure is dated to the Iron Age.

Kelvedon (Eddy 1982) – One four-poster is dated to the late Iron Age.

Little Waltham (Drury 1978a, 25) – Eight settings are reported in great detail. They have four to five postholes, range in area from 3–25sqm, and are considered to belong to two phases of Iron Age settlement. The site plan is of too small an area to consider their distribution except to state their apparently random proximity to roundhouses. Fired and vitrified clay in the posthole fills were the only finds. Destruction by fire is considered as possible for several structures. The Little Waltham structures are interpreted as granaries and are considered to be alternatives to storage pits which are absent, it is suggested, because of the 'nature of the subsoil'.

Mucking North Ring (Jones & Bond 1980, 480) – Four- and six-posters are recorded. The site plan shows half a dozen structures though it cannot be demonstrated whether they related to the Late Bronze Age enclosure or are later in date.

Mucking Linford Quarry (Barton 1962) – No settings are recorded.

Orsett 'Cock' (Toller 1980, 38) – One four-poster is dated to the Iron Age.

North Shoebury[20] – At least one four-poster is dated to the Iron Age.

Witham (*Proc Pre Soc*. 46, 1980). Two four-posters *c.* 3sq. m. are noted briefly. It is suggested one is a gatehouse or lookout. Both are dated to the Iron Age.

The provisional conclusion is that rectangular post structures at Mucking are to be interpreted as above-ground, prehistoric, probably Iron Age, storehouses presumably of grain. They are exceptional in being so numerous, especially on an open site, in including a nine-poster and in having produced radiocarbon dating. More detailed study, especially spatial analysis in relation to storage type pits and to different phases of prehistoric settlement, which will best be seen in pottery distributions, is clearly needed. Several themes which need further consideration include:

The contribution to site dating of the 70 BC radiocarbon dated nine-poster which belongs to the major linear group of about 15 granaries and which contained an entire pot of a type widespread in Essex and Kent.

The significance of the absence of granaries from the most southerly roundhouse group which is distinctive also in having adjacent compounds. Most of the 100+ roundhouses are freestanding. Does this structure indicate a pastoral settlement having no need for grain storage?[21]

The virtual absence of granaries from Barrow 5 field at the north end of the site (an area 130m × 170m), where are only three four-posters (2230N × 880E, 2355N × 830E & 2430N × 825E), suggests that above ground grain storage was not practised in the Bronze Age. Mucking therefore offers useful evidence for any study of the date of introduction of elevated granaries into Britain.[22]

The Daub P.M. Barford

The fills of most post 'ghosts' of both the six-poster (1745N × 575E) and nine-poster (1310N × 500E) contained well-fired daub showing a variety of wattle impressions. These could be interpreted to give a probable reconstruction of certain aspects of the superstructure of these features. This, taken with the radiocarbon dates of 70BC and 140BC (uncalibrated; see Note 19) indicates that these structures are roughly contemporary and may be considered together here. The fragments from the six-poster were fairly large and unabraded but those from the nine-poster were small and abraded and could best be interpreted in the light of the other group.

The clay is local brickearth with a little moderate to fine vegetable temper and occasional pebbles. The fabric is well wedged and compact. The wattles are round with the bark left on (in contradistinction to most of the other pre-Roman wattle work from this site). The wattles are 10–15mm in diameter and neatly woven between split planks (rather than rounded wattles or stakes). It is not yet known for certain whether the planks were horizontal or vertical. It is likely that they were horizontal and perhaps fitted with slots or mortices in the uprights. The daub was applied on to panels. It is hoped to use remnant magnetism to ascertain the orientation of the daub when fired.

The daub had two types of finish, rough and smooth, probably corresponding to the interior and exterior of the structure, some fragments were from the splay of an opening possibly some kind of ventilator.

Figure 4.31. 'Posters' distribution plan (by size and alignment groups).

'Posters' and Others

Since Mucking, a substantial corpus of raised 'poster-type' granaries has been recovered from the region. For example, occurring in association with the Middle Iron Age roundhouse settlement at Lodge Farm, St Osyth were 14 four-posters – one possibly involving five – and both a six- and a nine-poster; the latter being comparable to that at Mucking (1310N × 500E/PS56; Germany 2007, 54, fig. 4). At St Osyth, these generally were either isolated or in clusters of two or three, although there was one alignment of four arranged along the eastern side of the main settlement area (*ibid.*, fig. 30). Another intriguing parallel is provided by a continuous gully-circle (6677; 9.7m diam.) – that site's only uninterrupted building gully – whose central area was commanded by a large four-poster reminiscent of Mucking's round-roofed granaries/'Roundhouses' 56 and 58 (see also Drury 1978a concerning 'posters' at Little Waltham and Chap. 5, *Discussion* concerning Gorhambury's granary).

Excluding these gully-surrounded four-posters (Fig. 4.64), as far as can be established 112 'posters' were eventually distinguished at Mucking by the end

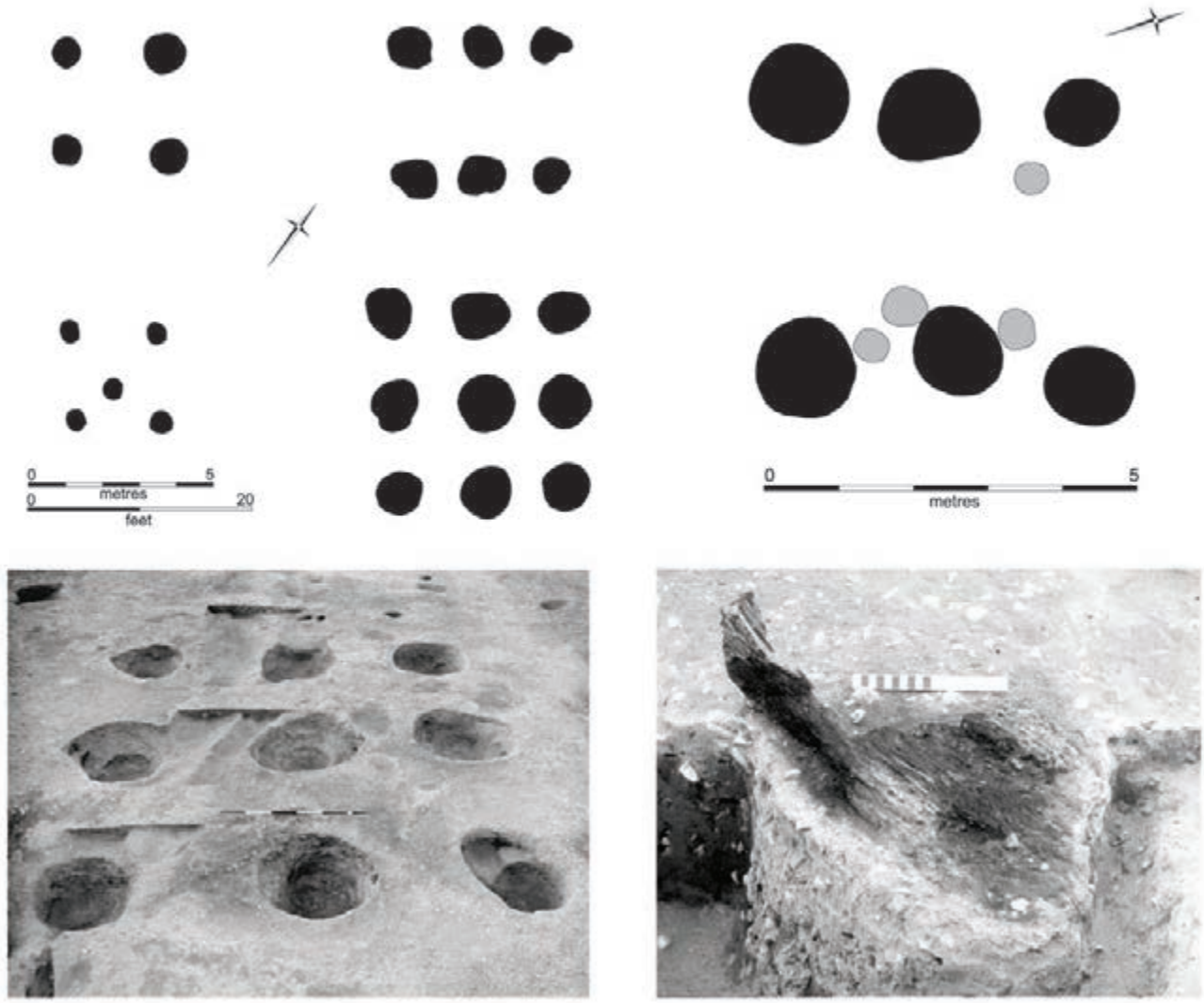


Figure 4.32. 'Poster' variability: upper left, comparative plans showing PS51 (four-poster), PS85 (five-), PS50 (six-) and the PS56 nine-poster (1309N × 514E); upper right, plan of PS73 (1740N × 580E); below, photograph of PS56 (left) with detail shot of one of its burnt timber, left.

of MPX. In addition to the single nine-post setting, this included 91 four-, one five- and 18 six-posters (plus one seven- and an eight-post setting). Sizes of six-posters ranged from 1.2 × 2.5m to 3.65 × 4.9m. Of the first two categories (4/5 posts), these generally ranged from *c.* 1.06 × 1.06m up to 2.75 × 2.9m, although four were substantially larger. One, PS85 (3.2 × 3.35m), fell within the area of the North Enclosure and is appropriately discussed in its text-section below. Among the others, PS94 lay immediately north of the main field boundary (IA9), linked to Enclosures 18 and 19, within the same quarter of the site (Fig. 4.51). Its situation just beyond the main Iron Age settlement zone is surprisingly and makes little obvious sense. Extending over 3.05 × 3.4m and marked by very large postholes, it is just conceivable it actually supported some manner of watchtower, given its 'settlement-edge' position. That said, its postholes were not actually any larger than those within a number of the site's other posters, including for example those of PS73 set amid the Roundhouse 90/96 cluster (Figs. 4.32 & 4.48) or Granary Row's array (see below); the possibility that some of these settings may have involved two-storey construction is considered in Chapter Five's *Discussion*.

A further 15 'posters' were added during the current post-excavation programme. Generally of comparable size to those described above, most are four-square settings and a number fall within the site's northern quarter. Largely assigned to its Late Bronze Age occupation, these have been reported on in the preceding chapter. Within this same area a number of six-post and more elongated settings can also be distinguished, only some of which have been enumerated by us. As further discussed in Chapter Six below, these are likely to have belonged to the site's

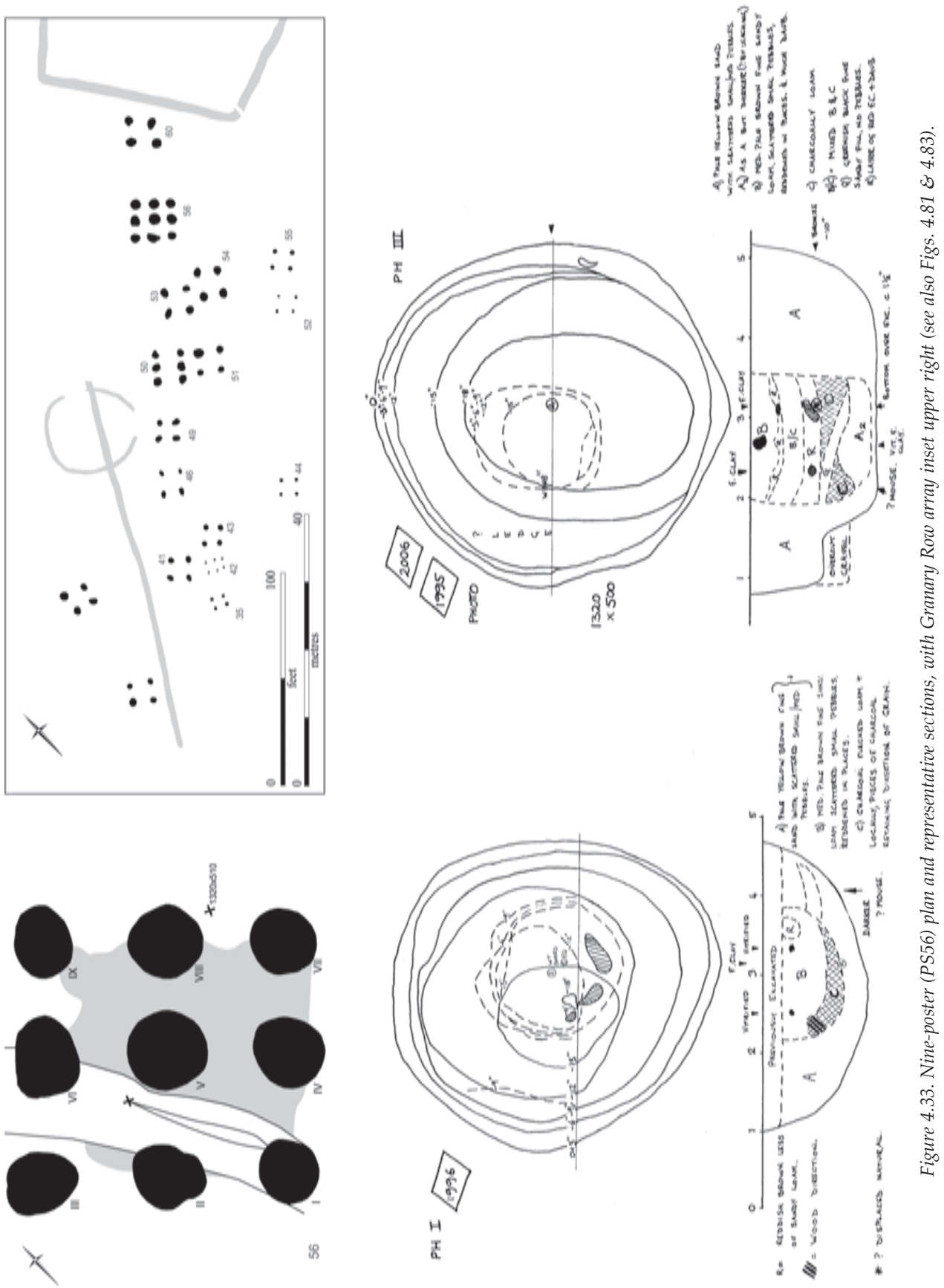


Figure 4.33. Nine-poster (PS56) plan and representative sections, with Granary Row array inset upper right (see also Figs. 4.81 & 4.83).

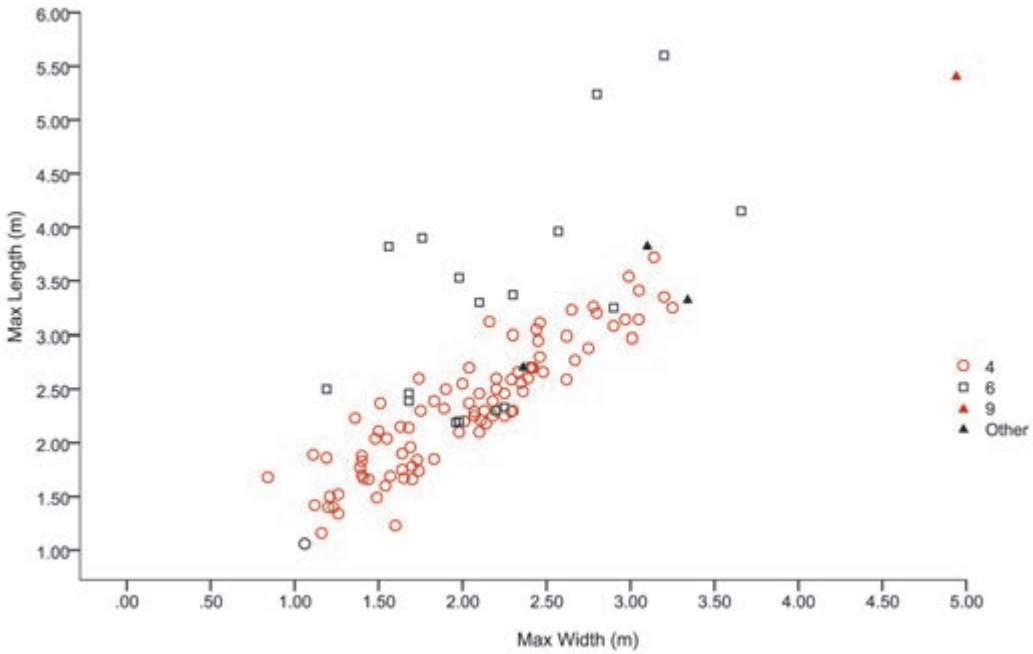


Figure 4.34. 'Poster' size-plot by posthole-setting number.

Anglo-Saxon usage and, indeed, other previously unidentified large rectangular post-settings also occur throughout that swathe, which may represent further hall-type buildings of Anglo-Saxon date.

Other possible poster settings were also identified during the current project within the area of the Banjo complex (and further additional candidates could probably be proposed right the way across the site). Of these, as shown on Figure 4.60, the settings subsequently distinguished there are generally somewhat smaller with less robust postholes than those identified by MPX.

We are not here going to attempt to analyse the site's many 'posters' by phase. Attesting to high levels of grain storage/cereal production throughout, it can simply be stated that they were a major settlement component from the Late Bronze Age through to the later Iron Age.[23] What, though, does warrant mention is that those involving very large postholes all appear to be of 'Middle/later' attribution.

For the purposes of analytical convenience, we have simply sub-divided all of the site's 'posters' into small and large categories (Fig. 4.34). Generally having less substantial postholes, the first of these were *c.* 1–7sqm in area (ave. 4sqm); the latter ranged from *c.* 6–26.5sqm (ave. 9sqm) and had far larger postholes. All told, 12 of these settings exceeded 10sqm. Apart from five within the major alignment lying in the site-centre that was highlighted in the Jones/Barford text above (and another in the south: PS3), the remainder were all located in the north.

Aside from 'Granary Row' (Fig. 4.33), at two points the 'posters' seem arranged in quasi-linear arrays. One swathe extended across and well beyond the North Enclosure (Fig. 4.31.II); though not so densely packed/obvious, the other such array lay in the field just west of that enclosure (Fig. 4.31.III). However, even when a part of these axes, for many their direct setting was evidently roundhouse-related; the most obvious instances being Roundhouses 98 and 97's respective relationships with Posters 85 and 77/78 (Fig. 4.46), and Roundhouses 90 and/or 96 with Poster 73 (Fig. 4.48).

Even though its context and setting will be further explored below (see *The Plaza*), the extraordinary and near-monumental *Granary Row* alignment (Fig. 4.31.I) warrants description here. Oriented roughly northeast–southwest along the terrace-top contour was a group of 12 post-built structures extending over *c.* 75m within the middle of the site (Figs. 4.33 & 4.83). These included examples of four-, six- and a single nine-poster, which appeared to have increased both in area and post-size from south to north. Arbitrarily divided into two groups, the southern group consisted of four-posters and an assumed six-poster (Nos. 35, 41–43, 46 & 49), with postholes that ranged in diameter from minimum values of 0.2–0.9m to a maximum of 0.3–1.2m, and their plan-area 'footprint' ranged from 2.5–8.6sqm (Nos. 35 & 46 respectively).

The northern group consisted of four four-posters (Nos. 51, 53, 54 & 60), a six-poster and the nine-poster (Nos. 50 & 56 respectively). Somewhat more substantial than the structures in the southern group,

the four-posters ranged in area from 9.3–11.4sqm. The postholes had maximum diameters of 1.5–1.7m and minimum diameters of 0.9–1.3m; posthole depth (where recorded) ranged from 0.3–0.5m, with fills comprised of mid brown sandy loam with occasional–frequent pebbles. A replacement post was inserted into the northeast corner of Number 60. On account of their very robust scale, the six- and nine-posters are described in further detail below (Figs. 4.32–3).

PS50 (1242N × 483E) – Its six postholes ranged from 1.2–1.5m in diameter and 0.3–0.55m in depth, and were steep-sided with concave to flat bases. Fills consisted primarily of mid to dark brown sandy loam, brown loam with pebbles to light brown gravel; one posthole appeared to have a basal layer of pebbles. Located immediately west of four-poster Number 51, this structure measured 3.7m by 4.9m and enclosed/covered an area of *c.* 18sqm.

PS56 (1310N × 500E) – A large structure of substantial postholes in an area of 'reddened' gravel measuring *c.* 5.2 × 5.5m (area 26.7sqm). Half-sectioned and recorded in 3-inch spits (7.6cm), detailed recordings of the postholes were made. They were 1.3–2.0m in diameter and between 0.4m and 0.65m deep. Seven had clear evidence of post-pipes (referred to as 'ghosts' in the notebooks and on section drawings), which ranged from 0.23–0.5m deep and 0.4–0.6m across. Preserved wood was found in two postholes, with that from [4112] sampled for radiocarbon dating (see Jones & Barford above; HAR-1632). The postholes (where untruncated by later features) generally had vertical or steep sides, with stepped or flat/sloped bases. Fills primarily consisted of pale brown, fine sandy loam with occasional pebbles; however, evidence of dark to black charcoally layers was also present with flecks of fired clay. Evidence of burning was also recorded, notably in four postholes, with some suggestion of heat-exposure found in the remaining five.

Arranged in almost a street-like manner (hence 'Granary Row'), the 'posters' within this group would seem to have been broadly contemporary. Their combined floor-area would amount to 158sqm and they would, therefore, represent perhaps upwards of *c.* 80–160 cubic metres of grain storage; the implications of such significant capacity will be further discussed in Chapters Five and Six below.

Enclosures

This section is primarily concerned with the development and dating of the site's four Iron Age enclosure complexes as originally identified: the ABC Enclosures, the Belgic Banjo, the North Enclosure and RBI. In order to reference their individual components, separate designations have been allocated to their distinct compound-parts (Fig. 4.35):

ABC Enclosures – Enclosures 1–4 (Fig. 4.38)
Belgic Banjo – Enclosures 7, 9–12 & 21–9 (also includes Conquest Period/Early Roman components; Figs. 4.62–3)
North Enclosure – Enclosures 15 and 16 (with a 'Post-set Square' associated; Fig. 4.46, 4.48 & 4.49)
RBI – Enclosure 5 (refers only to its western sub-enclosure; Fig. 4.41).[24]

Leaving aside the Joneses' 1100 Enclosure, numbers have also been applied to the period's more minor ditch settings (6, 8, 14, 17, 28 & 31) and also, for sake of convenient reference here, a series of the Late Iron Age/Conquest Period enclosures (13, 19, 20, 30, 32 & 33).[25]

Given the inconsistent level of their finds study and stratigraphic analysis, what follows are, for the most part, little more than 'enclosure-history sketches'; only the North Enclosure has been worked through in any detail (based on Steve Trow's notes, but see also Brudenell, below).

Four broad categories of what seem to have been the main 'living unit'/household settings can be distinguished; not surprisingly, there is potential overlap between these.

I) Cumulatively irregular/'organic' layouts, which include the ABC Enclosures 1 and 3 and the more minor curvilinear systems (Enclosures 6, 8 & 31; Figs. 4.8, 4.35 & 4.83).

II) There are two close-set ditched compounds in which the bounded space could not have served as any kind of functional space, due to the close spacing between enclosure and structure: Enclosure 16 (RH110) and Enclosure 19 (RH104). Accordingly, the purpose of their perimeters can only have been to isolate and/or protect their buildings. While in these cases this is likely to have been in relationship to livestock, in both instances these were clearly 'special' structures: Roundhouse 110 by virtue of its size and distinctly 'screened' layout, with Roundhouse 104 being a focus of metalworking.

III) There are two distinct ovoid settings (Fig. 4.36.3–4):

Enclosure 7 – 500sqm
Enclosure 11 – 1100sqm.

These would have marked affinities with Enclosure 29's 300sqm setting (Figs. 4.36.2 & 4.63), although the latter seems to have been of Roman date. To these could possibly also be added the curvilinear ditch-length immediately south of Enclosure 9 that defines Roundhouses 53 and 55 (Figs. 4.59 & 4.63), but whose layout would more appropriately be considered as comparable to the ditch-linkage between Roundhouses 86 and 88's 'pair' (Fig. 4.36.1). All of these were associated with the 'Belgic Banjo' and had broad entranceways oriented to southeast (that of RH53/55 possibly to south). Their function will be further explored in the discussion of that enclosure complex; given their distinct arrangement, it can only be presumed that they were, at least in part, stock-related.

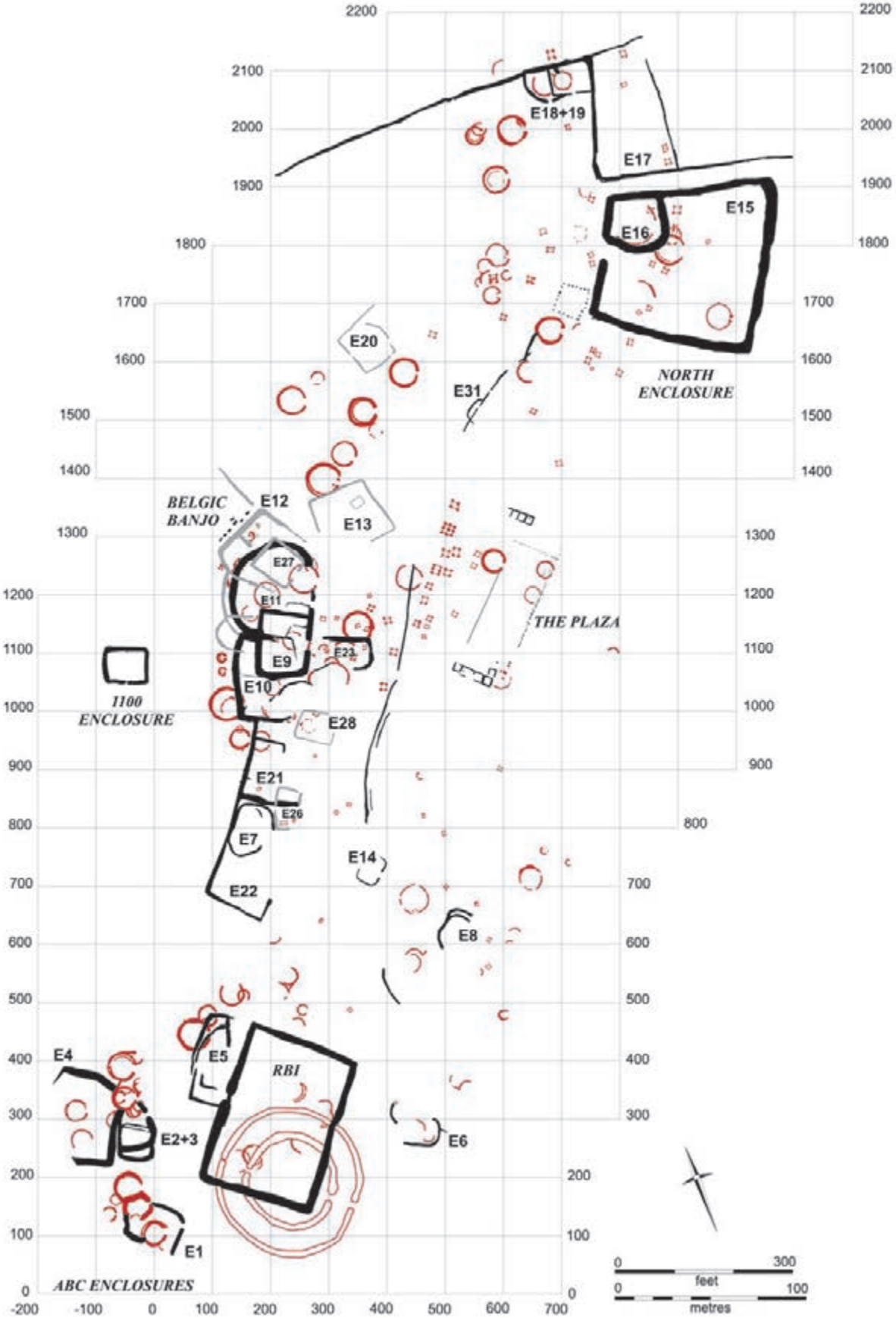


Figure 4.35. Enclosure designation base-plan.

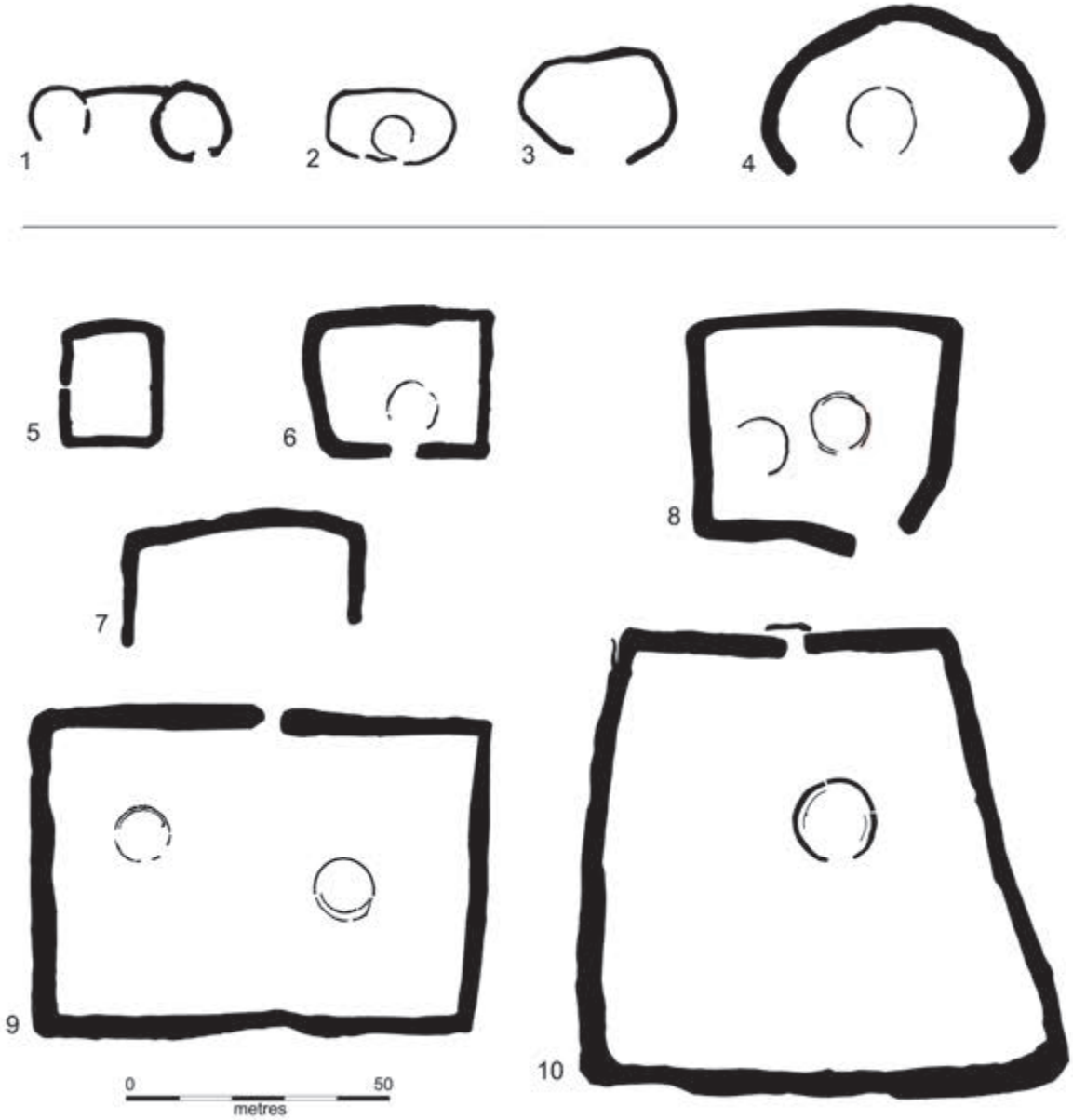


Figure 4.36. Mucking's Iron Age enclosures: 1) Roundhouses 86/88 linked 'pairing'; 2) Enclosure 29 (Early Roman/Conqest Period); 3) Enclosure 7; 4) Belgic Banjo, Enclosure 11; 5) 1100 Enclosure; 6) Belgic Banjo, Enclosure 9; 7) Belgic Banjo, Enclosure 10; 8) ABC Enclosures, Enclosure 4; 9) RBI Enclosure; 10) North Enclosure.

IV) If ignoring the smaller sub-rectangular enclosure components associated with the 'Belgic Banjo' (plus the circuit elaboration of its Enclosure 12), as well as also the more isolated paddock-like 'rectangles' north of that enclosure complex (Enclosures 13 & 20), there are seven main sub-rectangular enclosures. Three are of relatively minor scale: Enclosure 2, a part of the ABC Enclosures (235sqm; Fig. 4.38), Enclosure 18 (330sqm) set within the corner of the northern fieldsystem (wherein Roundhouse 105 lay; Fig. 4.46) and the 1100 Enclosure (275sqm; Fig. 4.53). The others were larger and, having heavily re-cut perimeter ditches, three clearly constituted main household/'living unit' compounds (Fig. 4.36.6, 4.36.8 & 4.36.10):

Enclosure 4 (ABC Enclosures) – 1550sqm
Enclosure 9 ('Belgic Banjo') – 650sqm
Enclosure 15 (North Enclosure) – 5675sqm.

To this should also be added Enclosure 10 (725sqm). Part of the Belgic Banjo complex and effectively open along its eastern side (there being only irregular minor trough lengths; Figs. 4.59 & 4.63), it does not, however, appear to have been a 'living unit' of the same type as the latter three and, again, an association with stock control seems likely.

Compared with the other enclosures listed above, the scale of the North Enclosure appears altogether different (Fig. 4.36.10). Its layout seems somewhat

more formal and, in contrast to the eastern orientation of the others, its main entranceway lay centrally along its western 'front'; this arguably related to the North Enclosure's fieldsystem/stock-driving location. It would have potentially created a 'tension' between its spatial organisation as opposed to the eastern orientation of its buildings. The latter was, of course, a near-uniform building tradition within Britain at that time (see e.g. Oswald 1997) and which elsewhere also led to 'awkwardness' *vis-à-vis* opposed house/enclosure orientation (e.g. HAD V; Evans & Hodder 2006b).

Also assigned to the last of the above-categories, albeit tentatively, and of a scale more comparable to the North Enclosure, the status and dating of the RBI Enclosure (Fig. 4.36.9; 4185sqm) – especially whether it actually involved/enclosed settlement *per se* – is far more ambiguous. These issues will have to be discussed at length in the appropriate section of the text below. What does warrant mention is that not only did RBI and the North Enclosure share sub-rectangular plans, but that the entrances to both faced west, as opposed to the eastward openings of the ABC Enclosures and the Belgic Banjo complex.

Having outlined the basic form-morphology of the period's enclosures, we will now consider the development sequence of the main enclosure complexes/groupings; for the sake of convenience, where appropriate, their associated cemeteries will also be included. Where reference is strictly necessary, we have assigned specific ditch numbers (prefixed 'IA'), as was the case with the site's Bronze Age fieldsystem.

The ABC Enclosures

As the first of Mucking's cropmarks to have been investigated, the excavation of the ABC Enclosures was not particularly accomplished. This is highlighted by comparison of its published plans (its 1974 interim plan and *The Atlas*) with Figure 4.37's aerial photograph of the stripped site (see also Fig. 4.40). While on the plans the adjoining enclosure ditch appears to truncate Roundhouse 4, on the photograph it is clear that this relationship was reversed and this would fully accord with dating evidence from the excavated features. Equally indicative is the frequency of 'half-circle' roundhouses distinguished only along one side of presumably later linear features (Fig. 4.38). Examples include Roundhouses 13, 15, 17 and 23 (and RH122). Although 'half-buildings' sympathetic to ditches are known (e.g. Drury 1978b; Drury & Rodwell 1973, 52–4 & 96–7), their occurrence in this case suggests a failure to trace their full plans. Furthermore, in the course of our analyses four or five other possible roundhouses were identified (RHs 121–4), which takes the total number of such buildings within the area up to 18. Although no 'poster' structures were identified within this area, at least one such candidate can be suggested. Finally, and as is apparent on *The Atlas* plans (see also Figs. 1.6 & 4.40), it is clear that excavation of this part of the site was only partial and that associated settlement features were lost to the quarry without record immediately to the east.

The occupation sequence would appear to span most of the period (Fig. 4.38). Whereas the vast majority of the complex's features were attributed to the Middle Iron Age, a number had Early–Middle Iron Age pottery assemblages, including Roundhouse 13. The pit-and-posthole 'circle' of Roundhouse 121 (*c.* 4.5m diam.) is the most significant of these, seeming to define a Late Bronze Age/Early Iron Age post-built roundhouse which, perhaps, related to occupation at Linford south of the road (see Chap. 1 and Barton 1962; Figs. 1.8 & 4.7). It would appear that the northern portion of Roundhouse 1 overlay an earlier building (see Fig. 4.24). For reasons outlined above, this may well have been of Early Iron Age date and of wall-trench construction (potentially with a south-facing doorway); this would then coincide with the relatively high density of pottery of that date recovered from the immediate area (see Fig. 4.6).

At the other end of the dating spectrum, Late Iron Age wares occurred in association with Roundhouse 4. That Romano-British Cemetery I was largely confined within the interior of the complex's main enclosure (No. 4) must simply attest to its lingering earthwork influence as, by the Late Iron Age, its compounds had fallen into disuse (see below).

In the main, this complex consisted of two main ditched compounds: separately in the south, Enclosure 1 and, to the north, the tripartite Enclosures 2–4 (Fig. 4.38). Here, the main compound was Enclosure 4's (sub-) 'square'. Projected to extend over some 2500sqm (*c.* 50 × 50m; see Rodwell 1978, fig. 1.A), its interior was evidently accessed by a 10m-wide entranceway within its northeastern corner; an adjoining sub-rectangular/-trapezoidal 'annex' had been added to the main enclosure's eastern front (Enclosure 3; *c.* 14 × 18.5m). Both of these truncated an earlier rounded 'square', Enclosure 2 (15.5 × 16.5m).

Although somewhat organic in its layout, the discrete southern compound, Enclosure 1, was essentially sub-rectangular (*c.* 10.5 × 20.5m). Its irregularity seems to derive from the fact that it incorporated or bounded two roundhouses, Roundhouse 1 (Figs. 4.14, 4.16, 4.24 & 4.26) and Roundhouse 124; the latter would have directly accessed the exterior, whereas Roundhouse 1 and the rest of the compound was obviously gained by a *c.* 2.5m-wide entranceway within the enclosure's northeastern corner.

The dominant northwest–southeast axis of Enclosure 1 differed considerably from that of Enclosures 2–4 and must have related to an earlier boundary along its southern side (BAD1). Apparently also having a contemporary northeastern return (BAD2), the Joneses variously attributed

Figure 4.37. Aerial photographs; top, looking east with the 1100 Enclosure and Belgic Banjo in middle ground and the South Rings, ABC and RBI Enclosures upper right (arrows indicate other possible unexcavated enclosures lying south of the 1100 Enclosure); bottom left, vertical shot, with South Rings, RBI and ABC Enclosures (note that comparing the structural/enclosure detail visible in this image with Fig. 4.40 attests to just how much was lost through quarry machining in the earlier years of the excavations); bottom right, ABC Enclosures as stripped, immediately prior to excavation.

this to both the site's Iron Age and Romano-British boundary systems (see. Fig. 4.2). As has, however, been discussed in Chapter Two, its alignment was sympathetic with the Middle Bronze Age fieldsystem (see Fig. 2.35) and may well have been of much earlier date; its influence on later layouts is perhaps due to the survival of an associated hedge-line.

Before progressing, mention should be made that the axes of another early paddock/fieldsystem can also be

Figure 4.38. ABC Enclosures phase-plan.

distinguished (IA1 & 2: [3912] & [1905]; Fig. 4.38). More minor in scale and on a different alignment to BAD1, this appears to have been truncated by both Enclosure 4 and Roundhouse 13 and it may have been of Early Iron Age date. Roundhouse 121 may also have been potentially Early Iron Age in date (and RH1's potential precursor). Setting these aside, the Middle/later Iron Age settlement in this area can be presented in a relatively straightforward three-stage sequence, although further phasing sub-division is possible. Within the area of Enclosure 1, Roundhouses 1 and 3 appear to have been linked by a ditch (IA3; [50]/[110]) that ran parallel and just beside the aforementioned potential Bronze Age boundary (BAD1; Fig. 4.38). Whilst suggesting their broad contemporaneity, it is possible that the smaller western building, Roundhouse 3, was earlier than Roundhouse 1 as the latter truncated a similarly minor building, Roundhouse 122 (by the same token, Roundhouse 2 probably pre-dated Roundhouse 124, as the two could not have co-existed without floor-area overlap). The crucial point is that, given their relationship to its ditched perimeter, both of the main roundhouses within the enclosure – Roundhouses 1 and 124 – must have stood prior to the laying out of the enclosure proper. The northwestern of this 'pair' (RH124) was itself subsequently truncated by the large building, Roundhouse 4, which had Late Iron Age wares associated.

Within the main enclosure grouping, the primary compound, Enclosure 2, has here been shown as contemporary with the majority of the area's smaller roundhouses (Nos. 15, 17, 19, 21, 23 & 123); while it may also have co-existed with Roundhouse 13, it is conceivable that this building pre-dated it. The key factor here is that all of these buildings, along with Enclosure 2's 'square', clearly predated the laying out of Enclosures 3 and 4. Standing within the 'square' of Enclosure 4, Roundhouses 9 and 16 must have been contemporary with it. The ditch-linked building 'pair', 20/24, blocked both enclosures' entranceways, and probably replaced the main compound's internal roundhouses (Nos. 9 & 16); they may well have been contemporary with Roundhouse 4 (which cut Enclosure 1). In this context, it should be stressed that the paired roundhouses, Roundhouse 20/24, must have effectively marked the end of use of Enclosure 3/4' and, as such, they were probably broadly contemporary with the 'unenclosed' roundhouse cluster to the northeast of this area (RHs 25, 30 & 32; see Fig 4.40).

Although possibly related to Romano-British Cemetery I and of post-Iron Age attribution, five inhumations occurred along the eastern side of Enclosure 3; of these, two were cut in the fills of its southern boundary (Fig. 4.38). Based on the body positions (flexed), the lack of accompanying grave goods and, at least in the case of the northern 'trio' (Graves 12, 16 & 54), their different orientation when compared to the interments of the formal cemetery, the excavators seemed assured of their Iron Age attribution.[26]

Grave 78 (248N × -24E) – Child (*Infans*)
Notebook 6.7
Grave pit: Unclear, seen only as a poor soil-mark with teeth.
Pit fill: Very dark loam?
Grave furniture: None.
Grave goods: None.
Body: Head stain and teeth. No silhouette. What little of the skull remained suggested that the body lay on its right-hand side.
Remarks: From dark fill overlying(?) grave came a Romano-British pottery base and tile fragment, suggesting to the excavator a Romano-British date, 'i.e. poorer members of this group continuing older tradition of crouched (burial) w. grave goods??'.

Grave 79 (253N × -14E; Fig. 4.39) – Adult (*Maturus*)
Notebook 65.6
Grave pit: No data, save that it was cut into an Iron Age ditch and was 5'6" (1.68m) long × 2'10" (0.87m) wide × >3' (0.91m) deep.
Pit fill: No data.
Grave furniture: No data.
Grave goods: None (handwritten sheet labelled 'Pre').
Body: Flexed and on right-hand side with head at east end of grave.
Bone: Skull and leg bones, very soft. Also a body stain.
Remarks: One Iron Age sherd found, but noted as 'not in fill' (no other indication of location given).

Another three graves occurred as tight cluster, with two truncating the northern side of Enclosure 2:

Grave 12 (277N × -13E; Fig. 4.39) – Adult (*Senilis I*)
Notebook 2.53
Grave pit: Regular oval *c.* 50 × 33" (1.27 × 0.84m), and possibly quite shallow. Not clear as cut into very sandy natural.
Pit fill: Very sandy, with pieces of daub.
Grave furniture: ?None.
Grave goods: No data.
Body: Flexed, and laid on its right side. Skull and leg bones well preserved. Fragments of the cranium ('and teeth' has been crossed out here) survived, among which scraps of temporal, mandible and – best preserved – maxilla were identified. Fragmentary teeth survived. The first molar has attrition down below the enamel and also a large caries cavity adjacent to the premolar. Wear stage 5+. *Maturus*, an old adult.
Remarks: Flexed position suggests this burial may be prehistoric, rather than Romano-British.

Grave 16 (280N × -15E; Fig. 4.39) – Adult (*Adultus*) Female/ Grave 16a Child (*Infans*)
Notebook 6.61, 67; 2.53
Grave pit: Squarish, with rounded corners. It was obviously small, as NB 6 notes 'after 73 and 76 this does not seem too small for a grave'. Size is given as *c.* 63 × 36" in NB 2 (1.60 × 0.91m). Cut into darker fill of enclosure ditch.
Pit fill: Clean sandy lens.
Finds in fill: 'Residual pottery' and daub.
Grave furniture: No data.
Bone: No data, save 'three pieces of skull'. Also '8' teeth noted.

Grave 54 (285N × -18E; Fig. 4.39) – Child (*Infans*)
Notebook 2.53; 6.67; 7.74
Grave pit: Roughly oval, 53 × *c.* 27" (1.35 × 0.68m). Cut into darker fill of B Enclosure ditch.

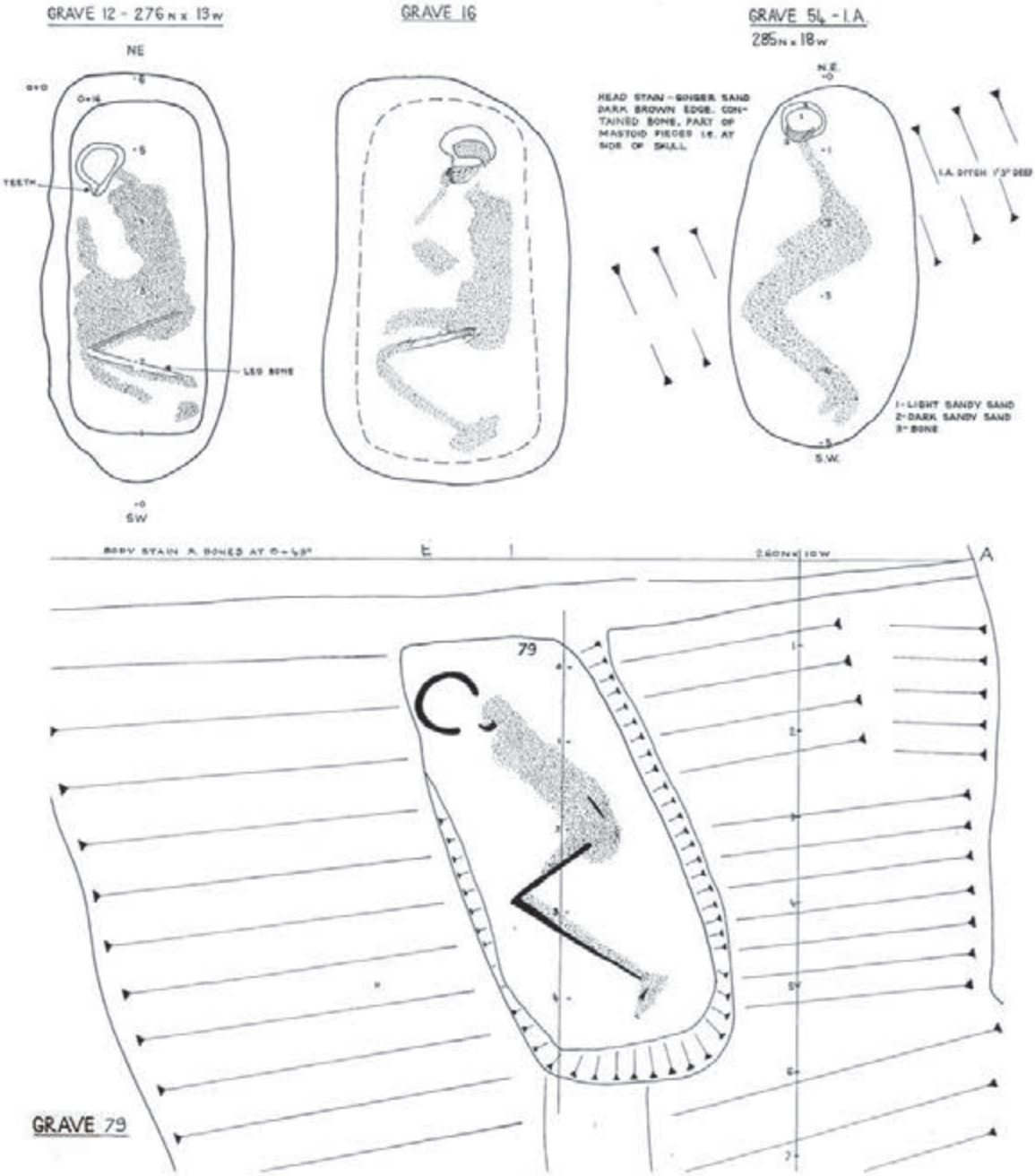


Figure 4.39. ABC Enclosures, Graves 12, 16, 54 and 79.

Pit fill: No data.
Grave furniture: None.
Grave goods: None.
Body: Flexed (handwritten sheet labelled 'Pre'). Head at same end as in Grave 16, suggesting contemporaneity.
Bone: Only a piece of mastoid at side survives. Head and body silhouettes of gingery sand with dark edges visible.
Remarks: Many MNO_2 speckles on grave bottom; may be residual and mostly from topsoil.

RBI and Adjacent Settlement

As outlined in Chapter Three, east of the ABC Enclosures the southern part of the site was among its most inconsistently machined portions; its archaeology had clearly been severely damaged in places (Fig. 4.40). Consequentially, it is one of the most poorly understood areas of the site, to the point that its Iron Age sequence cannot be adequately detailed.

The interpretation of the large RBI Enclosure altered early in the MPX programme. Given the

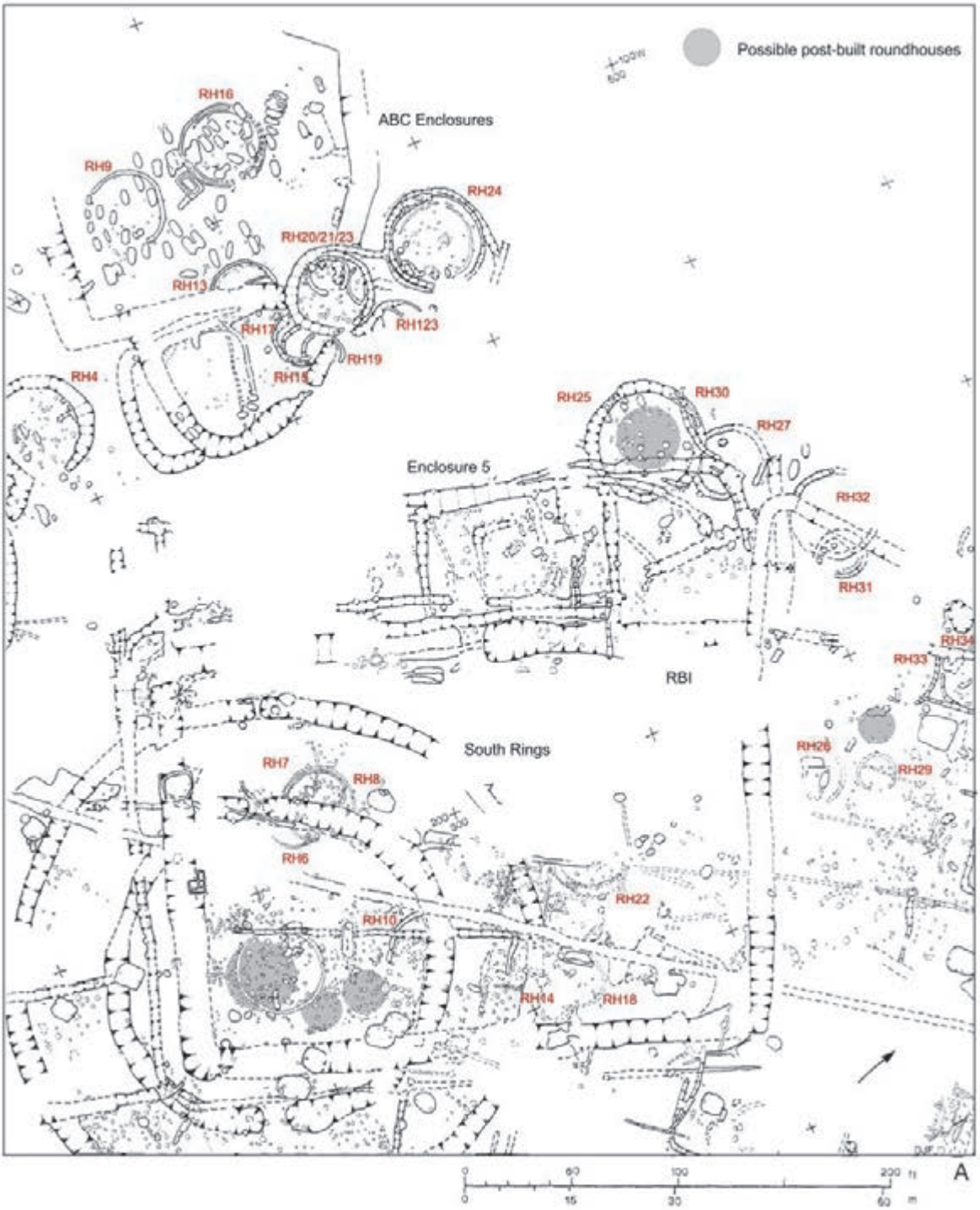


Figure 4.40. Base-plan of ABC and RBI Enclosures' area (and South Rings), with possible post-circle buildings indicated (note scale of unrecorded archaeology; i.e. the gaps in the spread of features).

military fittings recovered from the site generally and the regular formality of its layout, this rectangular enclosure – with a central entrance along its western side and with a more minor ditch running concentrically around much its perimeter – was thought during fieldwork to have had a Roman 'paramilitary' (i.e. 'not quite military') function (see Jones *et al*. 1968). Later though, due to the recognition that Iron Age material had occurred within its primary fills, this interpretation became more nuanced:

> Like their hill fort ancestors, these 'Belgic' shepherds seem to have witnessed war-like preparations – the raising of another defensive earthwork almost precisely over the silted ditches of the hill fort [i.e. the South

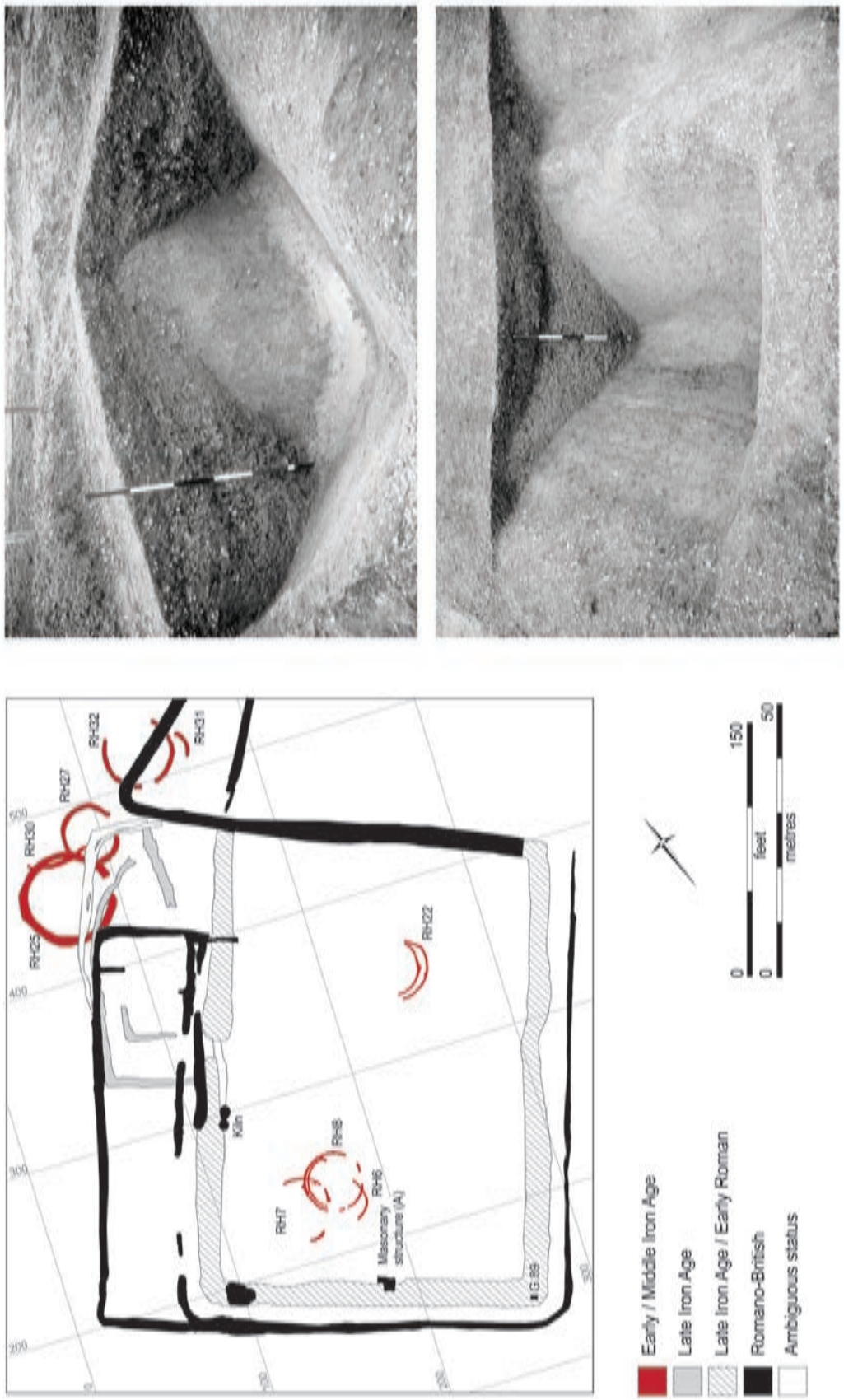


Figure 4.41. RBI and Enclosure 5: left, phase-plan: right, photographs showing excavation of main RBI ditch (northeast corner; top) and, below, the southwestern entrance terminal.

> Rings]. It may be noted that both these earthworks, also the Romano-British cemetery, lie beside the modern road to East Tilbury. This later earthwork, which cannot be exactly dated, offers a contrast to the easily laid out hill fort circles, in having accurately surveyed corners, and single entrance centrally placed in the northern, landward side, where the ditches terminate with neatly squared butt ends. The main ditch – some 2 metres deep and V shaped – is surrounded on three sides by a slight outer ditch. Lacking rounded corners and military finds, this cannot be related to orthodox military practice, though it hardly seems a native inspiration. Whatever its function, this stronghold, together with two further strategically sited enclosures along the terrace edge, seems to have provided a framework for the rectangular fields of a Roman villa (Jones 1972a, 68).

Through the phasing of the immediate area's Iron Age sequence, and with a greater appreciation of just how much 'open' settlement of that date there seems to have been in that part of the site (a possible source of the material within the enclosure's ditches), RBI has here been returned to a Conquest Period/Early Romano-British attribution, albeit in a revised form. As will be further outlined below, a military function does seem plausible based on this and the strands of evidence that supported its original fieldwork interpretation.

The crux of RBI's sequence is focused on its western exterior side where four eavesgully-surrounded roundhouses lay (Fig. 4.41). There, Roundhouse 27 (9.25m diam.) was superseded by the much larger Roundhouse 25 (13.9m diam.) and, just to the north, Roundhouse 32 (11.3m across) truncated Roundhouse 31 (Fig. 4.17). The latter was a rather unusual horseshoe-shaped setting with a wide southern entrance and a posthole-ring set close to its gully; the orientation of Roundhouse 32's entrance was not determined, with those of Roundhouses 25 and 27 both being to the east/southeast. Given their morphology, there is every reason to see these as being of Middle Iron Age date. Indeed, Brudenell assigns Roundhouse 25 to the later Middle Iron Age (see Chap. 5) and there are strong grounds to think that Roundhouse 32 was contemporary with it. As outlined above, Roundhouse 25 appeared to have an earlier off-centre post-circle building within its interior. Its date is unknown. While possibly Early Iron Age, that its evidently porched southeast-facing entranceway apparently matched that of the subsequent eavesgullied building might instead suggest an 'earlier' Middle Iron Age date.

While the two northern buildings (RHs 31 & 32) were both severely truncated by Roman-phase features (Fig. 4.41), Roundhouses 25 and 27 were evidently cut by a Late Iron Age enclosure system (Enclosure 5). Extending over *c.* 27 × 50m, its poorly realised plan clearly included both rectilinear and curvilinear components. Its boundaries probably represent more than a single-phase layout and some elements may even have been contemporary with the roundhouses. In plan, the arrangement of its southern end is even suggestive of a sub-rectangular building plot.

As shown on Figure 4.4, the finds distribution within the area of Enclosure 5 leaves no doubt of its Late Iron Age affiliation; in addition to both Belgic and La Tène-style decorated sherds, eight brooches and three coins of that date were recovered.[27] As the RBI Enclosure appears to cut Enclosure 5, at least in its final re-cut form, it is hereby assigned a Conquest Period/Early Roman phasing.

As also indicated on Figure 4.4's plots, Late Iron Age finds also occurred elsewhere within RBI's ditch axes, although they are somewhat less concentrated. While the status of these is further discussed below, their apparently more sporadic distribution is largely due to how little of RBI's ditches was actually excavated. Locally their finds numbers could be high; for example, parts of four different La Tène-decorated vessels were recovered from its southeastern corner segment (see *Discussion*'s 'Final Plottings' section below; see Fig. 3.21 for the enclosure's quernstone, loomweight and spindlewhorl distributions).

The gullies of seven roundhouses were distinguished within the interior of RBI, of which that of Roundhouse 8 was the only one approaching a complete or intelligible plan (Figs. 4.40–1). The others were little more than gully fragments and it is likely that other buildings of that date were also located in that area. Of those that were distinguished, the intercutting Roundhouse 6–8 series were all of wall-trench-only type (Fig. 4.16); Roundhouses 10, 14 and 18 were of the generic 'gully' category (all 'undated'; Figs. 4.16–17). Although only approximately a third of its circumference was recovered, arguably the most significant was Roundhouse 22. This consisted of two successive wall-trench arcs, 9m and 10.2m across. The portions that were documented indicate that its doorway could not have occurred within the southeast sector. With a non-standard orientation, and in the size and character of its wall-trenches it is reminiscent of Roundhouse 39's 'special' structure and, like it, probably of Early Iron Age date (see *Early Iron Age,* above). It is also noteworthy that no robustly eavesgullied buildings occurred within the interior-area of RBI. Given this, only Roundhouse 8 (and possibly No. 10) may have been contemporary with the primary usage of RBI; there are no candidates that might have belonged to a Late Iron Age phase.

The same is also true of Roundhouses 14 and 18. While both are undated, lying so close to the enclosure's eastern side, it is difficult to see how they could have been contemporary with it. They are, therefore, probably of either Early or earlier Middle Iron Age attribution.

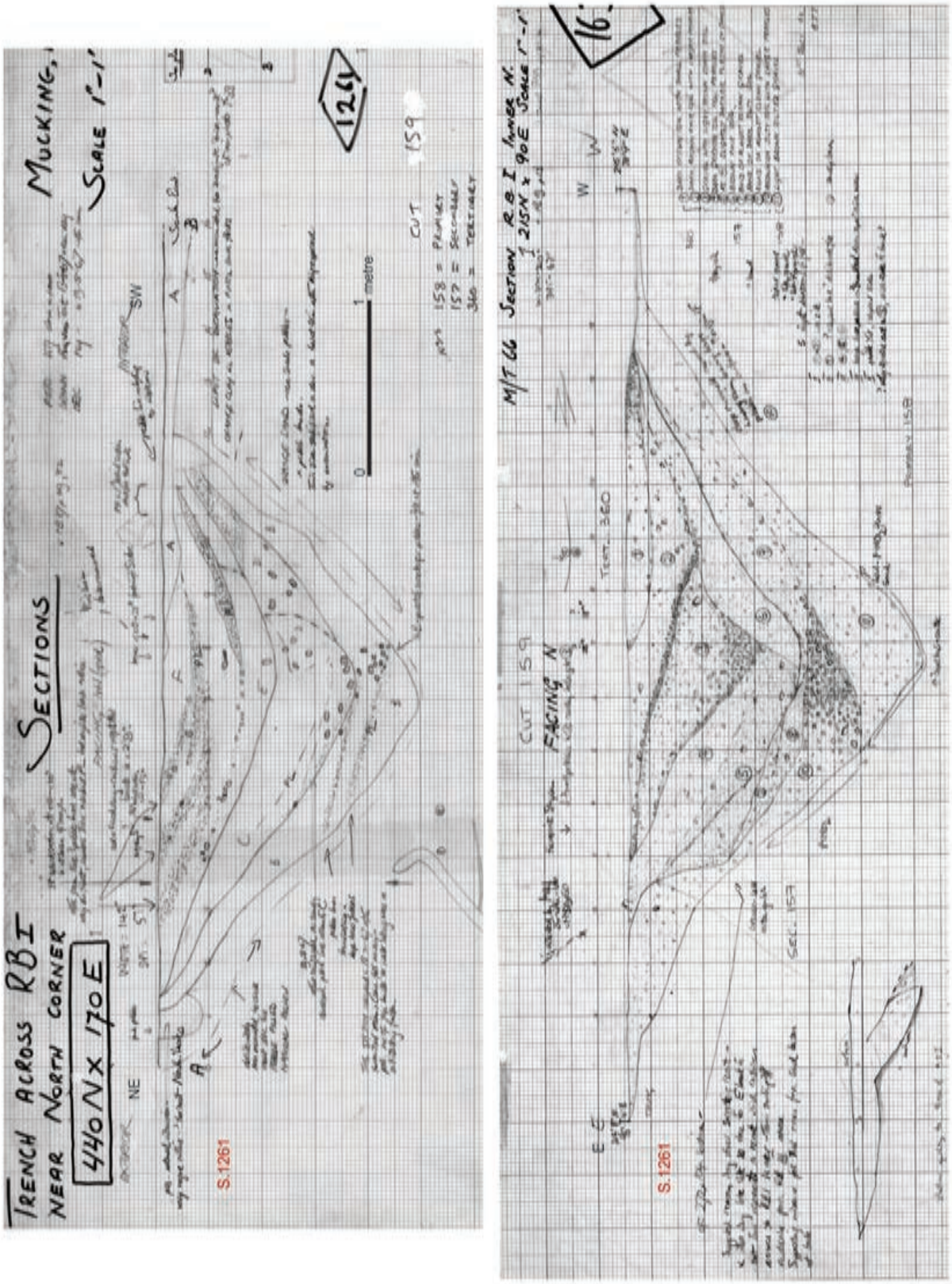


Figure 4.42. RBI Enclosure, sections.

Table 4.3. RBI, pottery distribution by enclosure ditch-depth.

Level	Brooches/ Coins	MIA	MIA-LIA	LIA/ Conquest	1st AD	2nd AD	3rd AD	4th AD	AS
0	98–117; 268–70			6	8	29	0	2	
1	367–74; LIA			375	466	4543	47	48	xx
2	161–80	x	x	778	671	1718	14	23	xx
3		xx	xxx	497	436	341	1	0	xx
4	1st BC	xxx	x	192	203	89	6	0	
5		x		48	60	21	1	0	
6		x	xx	7	10	137 (late fill)	0	0	
7		xx		1	39	5	0	0	
8		xxx							
9		xx							
10		xx		15					
11		x							
12		xx							
13		x							

The main RBI Enclosure itself extended over 85 × 55m; with a 'V'-shaped profile its associated ditches were 3–4.0m wide and 1.4–2.3m deep (Fig. 4.42). Its 3.0m-wide entranceway, situated midway along its western side, was later closed with the insertion of a more minor ditch length; no gateway structure or the like was apparently recovered (Fig. 4.41). A kinking and narrowing of its ditch halfway along the eastern side might just attest to an opposed entranceway, but this would have been subsequently eradicated through re-cutting.

Dating and phasing of this enclosure is certainly problematic. On the one hand, that both Anglo-Saxon and Late Roman pottery was recovered from its upper profile would attest to its lingering earthwork survival; as detailed in the Roman volume, though, both a first-century AD kiln and a later Roman masonry structure cut its fills. On the other hand, as demonstrated by Table 4.3, only Middle Iron Age pottery was apparently recovered from its primary fills. Above this was a 'charcoal-rich' horizon in which quantities of 'Belgic' and Roman pottery (both Early and Late), along with Late Iron Age and Roman coins and brooches, occurred. While this may sound straightforward, the apparent complication of the enclosure's sequence should be stressed. Hints of this are offered by photographic slides of deposits within its middle–upper ditch profile variously annotated 'hearth' and 'clay layer'. Certainly, we have here been unable to come to terms with its complexity, but the impression is that its excavation and recording did not do it justice, no doubt driven by pressing salvage need. This is conveyed in the record of the digging of a flexed inhumation burial (Grave 89). Located in the primary fills of the enclosure's southeastern corner, its discovery only followed the reduction of the ditch by the dragline (Fig. 4.43). (A cremation was also recovered from within the ditch midway along its southern circuit [No. 86]; however, occurring in its upper profile and deposited in a grey ware urn, this was of Roman date.[28])

Apparently after the mid first century AD, a second ditch (of far more minor portions) was added 3–3.5m outside RBI's main circuit, at least along its eastern, southern and most of its western sides (Fig. 4.41); a gap in the latter indicates that the entrance on that side still functioned (there being no such break in its eastern line). Presumably this was undertaken to refurbish the enclosure and add an external bank/rampart (although there is no evidence of any revetment). Given this, there are three possible ways of interpreting the enclosure's development. First, that it was simply established in the Middle Iron Age and left to slowly fill and linger as an earthwork, with the outer circuit added in the second half of the first century AD. The second option would be to have both the ditch circuits date to the Late Iron Age/Conquest Period (in which case, the Middle Iron Age wares would all be residual). The final scenario would be to have the enclosure established in the Middle Iron Age, but then re-cut and refurbished in the Late Iron Age/Conquest Period; this re-cutting possibly being suggested by the 'interruptions' within its fill sequences (see Fig. 4.42). The latter would explain why RBI appears to truncate Enclosure 5, as its primary form would then be contemporary with Roundhouses 30 and 32. Pertinent to these arguments is the fact that, as further discussed below, RBI does,

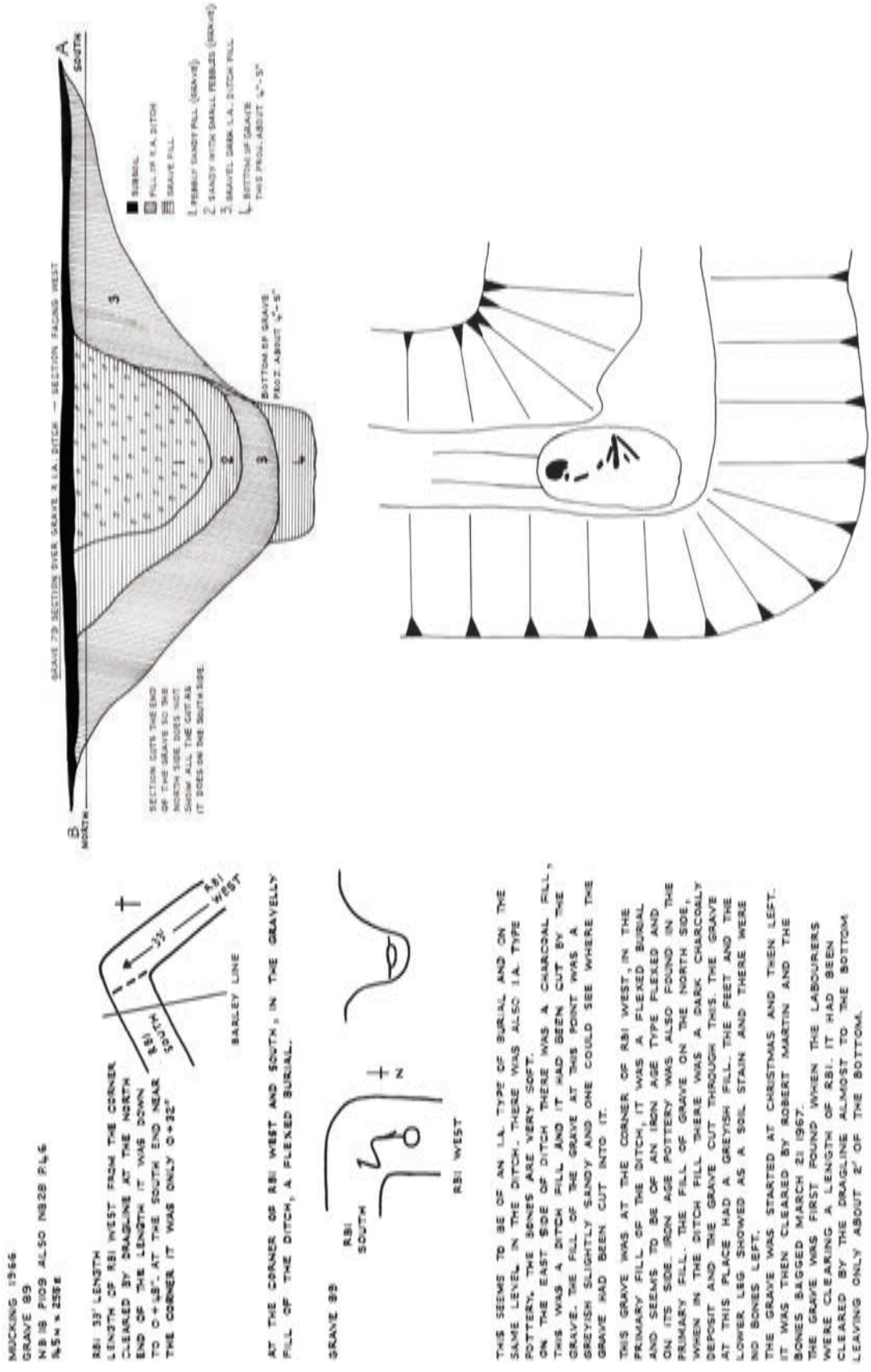


Figure 4.43. RBI Enclosure, Grave 89.

indeed, look military in its layout, and this is furthered by the Roman military equipment recovered from the site as a whole. This could be further supported by Richard Reece's conclusion that the site's Roman coins display an earlier military-related profile (see Roman vol.). Equally the character of the Conquest Period layout in this area of the site, which appears to involve both a crossroads and what seems to be planned allotment plots (see Fig. 4.86), might also point to a military presence. This need not have been substantial and may have only occurred to any significant degree prior to AD 60/70, with perhaps only a small 'guard ' presence thereafter.

As fully described in the Roman volume, several pieces of metalwork from the southern part of the site, close to RBI, form a potentially 'early' group of military metalwork. These include the possible copper alloy horse pendant and *lorica squamata* fragment, a possible iron sword fragment, plus a spearhead and a ferrule. Also recorded was a possible buckle frame found within the ditch fill of RBI that may have been a fitting from a set of *lorica segmentata* (see Fig. 6.21). The close proximity to RBI and probable early date of these items could suggest more than a 'slight' military presence during the mid- to later first century AD. If correct, this interpretation of the metalwork evidence, and Reece's comments on the Roman coin profile for the site as a whole, may imply that the military established itself at Mucking shortly after the Conquest, albeit in small numbers. The recovery of late military belt fittings from *Grubenhaus* 22 (120N × 320E) and 113 (-197N × 290E), and other Roman military items from across the site, is thought unlikely to reflect a continuous army presence, but instead attests to the site's specific circumstances in the Late Roman period (see Chap. 6, below).

While the western side of RBI was to have another rectangular enclosure 'cell' added to its double-ditch perimeter in the Roman period, very few cut features of the period occurred within its interior: just a single ditch and a post-built structure, which are unlikely to have had anything to do with its primary usage. If essentially a Conquest Period military compound, then it is probable than any associated buildings (such as beam-slot construcion) would have had slight foundations and would not have survived the area's heavy machining (and could also have been missed given the focus placed on the earlier South Rings enclosure). The alternative would be to consider RBI as some manner of later Iron Age ritual enclosure, which, akin to The Plaza's relationship to the subsequent Double Ditch Enclosure, was avoided or respected at least throughout the later first century AD. For the reasons that have been outlined – especially the immediate area's seemingly planned Conquest Period/Early Roman layout – this is thought unlikely.

The North Enclosure and Northern Boundary System (Enclosures 17–19 & 30)

Dug in the early–mid 1970s, the area of the North Enclosure was amongst the better excavated and recorded portions of the site. As outlined in Chapter One, it was case-studied by Steve Trow during the BM/EH programme and the archives include parts of a draft manuscript by him, which has informed this text.[29]

Extending over *c.* 0.6ha, the enclosure itself (No. 15) was trapezoidal, albeit elongated markedly to the northeast (see Figs. 4.36 & 4.46). As further outlined in Chapter Five's *Discussion*, the irregularity of its plan might, in part, relate to the fact that this was the only one of the site's Iron Age compounds to extend down the terrace's eastern slope, with the rest all lying on its level top (see Fig. 4.82).

The enclosure's perimeter ditch was 3.0–5.9m wide and 1.25–1.7 deep, and generally had a narrow flat/rounded base with a steep 'V'-shaped profile (Figs. 4.44–5). Amid its largely mid–dark brown sand loam fill, a *c.* 0.2m-thick 'pebble-free' turf-line was consistently distinguished across the middle to upper third of its profile. Anglo-Saxon finds were recovered from the deposits above that point, and the area saw extensive settlement of that period. While there was relatively little indication of Romano-British activity, Figure 1.17's tile plot further attests to the degree of the enclosure's earthwork survival.

In an effort to fix the end of the enclosure's Iron Age usage, an archaeomagnetic date of 100±50 years BC was apparently achieved from the turf-line horizon; this assay led Margaret Jones to speculate that it might have been abandoned as a result of Julius Caesar's expeditions of 55–54 BC (Jones 1976). Indeed, aside from noting the quality of the enclosure's survival,[30] in an earlier interim statement she stressed its defensive character:

> The north enclosure, however, though mostly on the slope, remains a substantial earthwork. With its V-ditch, sub-rectangular in plan, dug more than 2m. into the gravel, and its internal bank, this ranks as a defensive enclosure. Its dimensions, about 80ms. across, and its strategic siting, invite a comparison with the now destroyed earthwork at Gun Hill, West Tilbury, which was rather smaller (Jones 1975a, 36; emphasis added).

As reported by Greig below (Chap. 5), a pollen core was taken from the enclosure's main ditch, with the results suggesting that it was built within an open grassland environment.

The enclosure was accessed *via* an entrance causeway midway along its western side (Figs. 4.45–6). Originally *c.* 3.0m wide, this was subsequently broadened to some 8.0m; it had a (blocking) post-trench located immediately to its west. The enclosure ditch displayed extensive evidence of re-cutting. This was most marked in its northwestern corner,

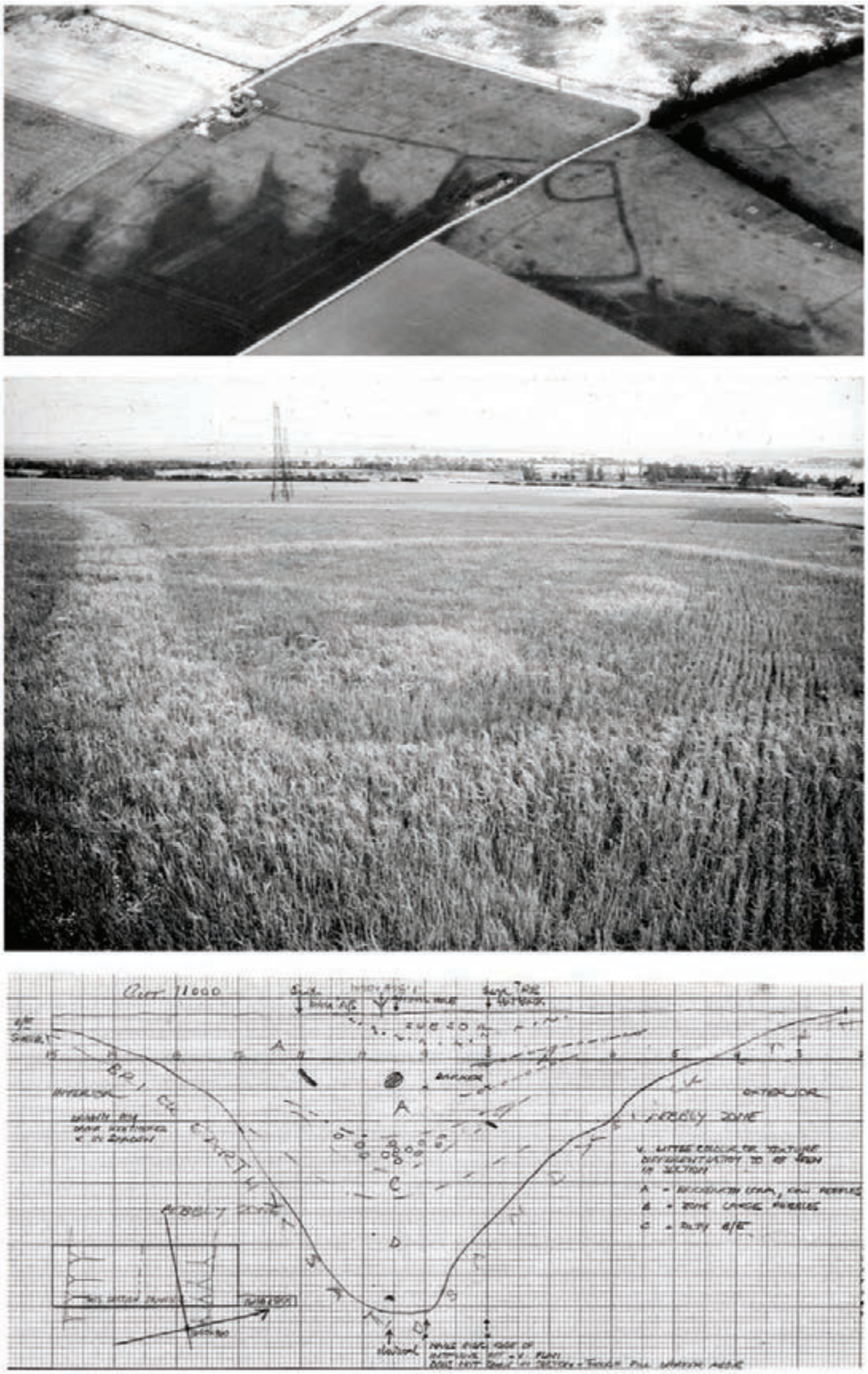


Figure 4.44. The North Enclosure: top, 1972 aerial photograph looking east (CUCAP BJC 78); middle, photograph looking southeast with main features visible in differential crop-growth; below, main ditch section.

Figure 4.45. Photographs of North Enclosure ditch sections; left, looking across the western entranceway with earlier ditch, IA4, in foreground.

into which a sub-square compound had been inserted (*c.* 24.5 × 25m; Enclosure 16); its ditch was of comparable size to that of the main enclosure and was up to *c.* 2.0m deep.

Differing in aspects to the BM/EH phasing, here a simplified three-stage schema is offered (Fig. 4.46):

The layout of the enclosure proper was clearly preceded and influenced by an earlier fieldsystem, which here is held to be of 'earlier' Middle Iron Age date. Its determination upon the subsequent enclosure was demonstrated at two points. First, the IA4 boundary ([11621]) that only survived across the width of the main enclosure entrance and which was of much more minor proportions (*c.* 1.3m wide; see also Fig. 4.49). Second, the IA5 ditch ([10598]), clearly cutting a Bronze Age fieldsystem boundary (BAD 10; see Fig. 2.37) and of comparable size to IA4, ran parallel with the enclosure's northern side and obviously determined its 'pull' in that direction (the Roman-attribution of this ditch shown on Figure 2.37's interim plan is quite simply erroneous; cf. Fig. 4.2).

As it is shown on the *Atlas* plan (Sheet 21), the western end of the IA5 boundary appeared to have petered out and it is conceivable that it actually conjoined the IA4 ditch. There can be no doubt that IA5 marked the southern side of a 4.5–6.0m-wide, east–west oriented droveway, whose northern edge would have been defined by ditch IA6 ([10583]). This frequently re-cut and evidently long-maintained boundary was directly tied to the main Iron Age fieldsystem within this area. At its western end (roughly corresponding to that side of the North Enclosure) it was met by a northward return, IA7 ([10543] *et al.*). Obviously a significant landscape boundary in its own right, the latter's relationship with the main IA9 boundary ([10014]) was acute (Fig. 4.48). Extending for 28m east of its junction with IA7 (after a 10.5m-wide entrance gap), the end of the IA9 boundary had a right-angle return with ditch, IA8 ([10666]). IA8 ran southward, where it just extended beyond, and was evidently truncated by, the northern droveway ditch (IA6). This is a crucial relationship as it indicates that the main IA8/9 'landscape' boundaries actually predated the fieldsystem (and droveway) within the immediate North Enclosure-area. Undoubtedly a major landscape boundary (see e.g. Fig. 4.15), the status of the IA9 ditch will be further discussed below, as it appears to have effectively delineated the northern limits of the terrace's Middle/later Iron Age occupation.[31]

It is ambiguous whether this Iron Age boundary system involved settlement as such. Although the ceramic dating is insufficient to allow for any unequivocal determination, occupation is certainly likely. Just north of the main droveway, both a four- and six-poster (respectively, PS88 & 89) lay on the north side of the IA8 boundary and were probably broadly contemporary with it, given their parallel orientation (Fig. 4.46.1). Within what was to become the interior of the North Enclosure, there would be a number of candidates for contemporary buildings. Roundhouse 98 (Fig. 4.21) would be one, but based on its pottery spot-dating this has been attributed to the Late Bronze/Early Iron Age. This seems reasonable, given its wall-trench construction-type and that it appears to have been directly superseded by Roundhouse 97 (Fig. 4.21), which is dated by Brudenell to the earlier Middle Iron Age. Though there can be little doubt that Roundhouse 97 was the primary house of the North Enclosure, it is in fact likely that it already stood and, therefore, could have been contemporary with the use of the previous 'open' boundary system.

Both later Bronze Age and Early Iron Age occupation certainly occurred within this area (see Figs. 3.3 & 4.6). Roundhouses 91 and 98 are the only such buildings assigned to the Early Iron Age with any degree of confidence, but along with Roundhouses 99 and 120 – in addition to the four post-circle settings that have been identified (see Figs. 4.24, 4.47–9) – between them these are probably sufficient

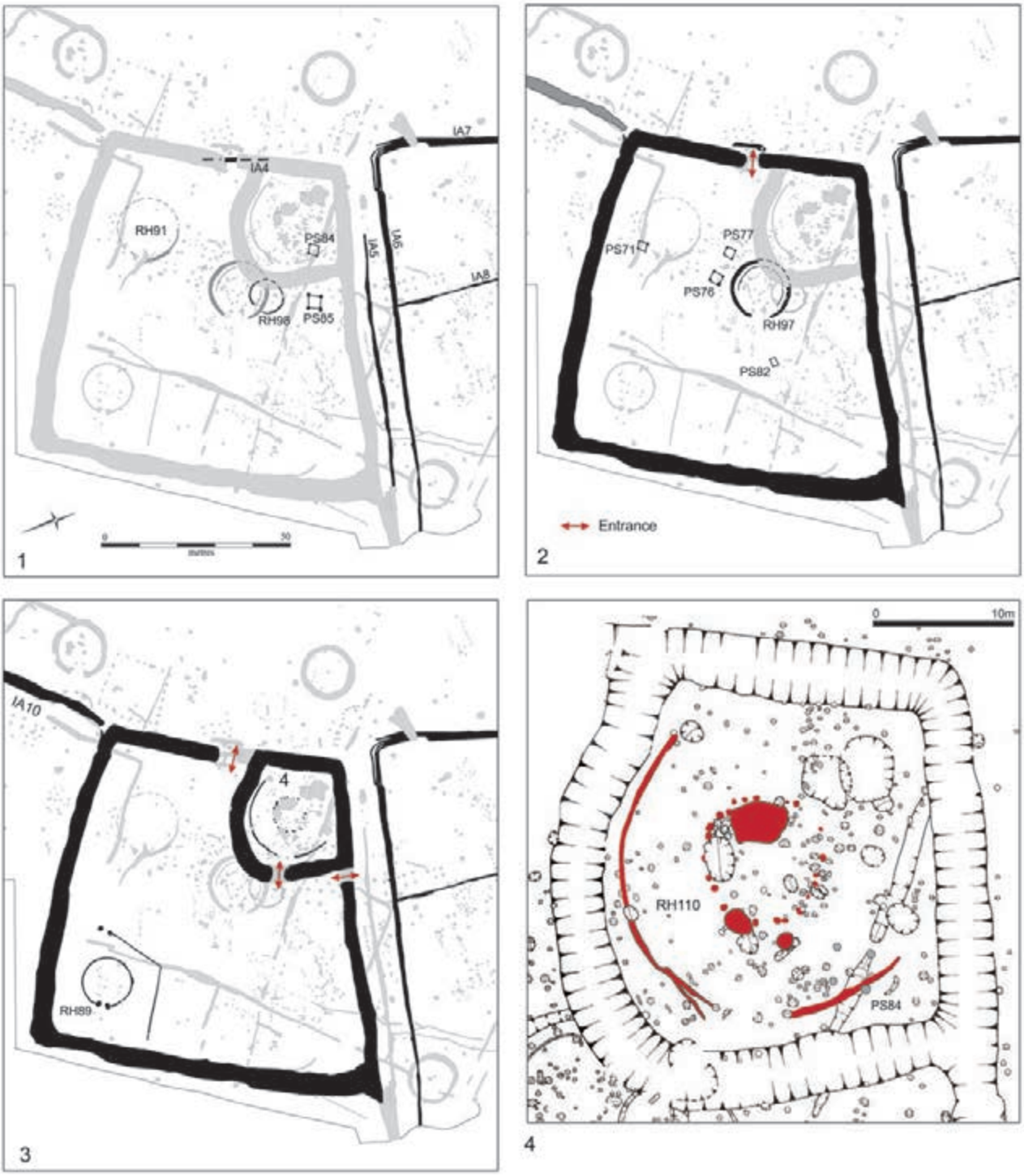


Figure 4.46. North Enclosure phase-plans.

to have spanned the later Bronze/Early Iron Ages. Indeed, as shown on Figure 4.24, a post-circle building seems to have immediately preceded Roundhouse 98 within the enclosure's central area; together with Roundhouse 97, these indicate a three-fold building sequence and suggest considerable continuity.

The next phase of Iron Age development saw the establishment of the North Enclosure proper (Fig. 4.46.2). Located within the enclosure's approximate centre, its main building, Roundhouse 97, had an east-facing entranceway.

The enclosure's third-phase, later Middle Iron Age usage was marked by a re-cutting of its perimeter, the broadening of its western entranceway and the establishment of the ditched sub-square compound within its northwestern corner (Enclosure 16; Figs. 4.46.3 & 4.48). The latter served to enclose Roundhouse 110, a quite extraordinary structure defined by an 8.5–9.0m-diameter posthole circle, whose densely set posts appear to have been accessed from the north where there was a broad, 2.0m-wide gap (Fig. 4.46.4). Running concentrically 5.4–6.5m beyond it, at

Figure 4.47. North Enclosure: Roundhouse 110 plan, with other possible structures indicated.

least along its southern and eastern aspects, was also the arc of a 'wall-trench'. This had a 4.5m-wide interruption along its southern side, which directly corresponded to a dumped causeway-crossing within the compound ditch at that point, albeit far narrower (*c.* 0.9m wide; Figs. 4.46–7). On its western side this trench terminated 4.6m short of the main enclosure ditch, with a 2.9m-wide gap to the northern perimeter; this surely indicates the presence of the main enclosure's interior upcast bank. (Note that another ditch-crossing causeway was identified along the main enclosure's northern perimeter, immediately south of its corner-junction with Roundhouse 110's ditched compound. Due to later truncation, its width does not seem to have been firmly established, but it is estimated to have been approximately 2.0m across.)

The bank-related termination of the wall-trench and the fact that its circle did not extend around the rest of Roundhouse 110's post-ring, could suggest that, rather than being the wall-line of an extreme large building (*c.* 22m diam.), it was a fenced-screen intended to mask the post-circle's roundhouse from the main enclosure-area. While this seems a satisfyingly pragmatic solution, there remains an element of doubt. In the northeast, the line of the wall-/fence-trench followed the circumference of the inner post-circle and not the square corner-arrangement of the compound/enclosure's junction, as might have been expected if it had just been a fence-line; a possible explanation for this is that the fence-surrounded building predated its subsequently ditched compound.

At that time the enclosure also appears to have hosted another roundhouse, Number 89, set within its southeastern corner (Fig. 4.46.3) and which, again, had an eastern entranceway (Figs. 4.20 & 4.23). Remarkably, it also seems to have been screened off from the area of the main enclosure and a 'slot-trench' – arguably also holding a fence-line – enclosed the building on its northern and western sides; it had a 1.4m-wide entranceway in its western side marked by large postholes.

Probably broadly contemporary 'poster structures' within the North Enclosure are PS 71, 76, 77, 82 and 85 (Fig. 4.46); with postholes 0.73–1.25m in diameter (0.65–0.75m deep) and extending over 4.0 × 4.2m, the latter would have been particularly impressive. Another such setting, PS84, fell within the interior of Roundhouse 110's corner-compound (Enclosure 16; Fig. 4.47). Though appearing to have cut that building's 'screen', Brudenell has assigned its pottery to the Late Bronze Age/Early Iron Age and, therefore, it is likely to have either been contemporary with or even predate Roundhouse 98. The other such settings identified are, otherwise, either unconvincing (e.g. PS70 & 82) or, in the case of PS74 and 83, perhaps of post-Iron Age date (?Anglo-Saxon).

All this being said, it remains difficult to be certain whether any of these granaries can be specifically attributed to the North Enclosure. As is apparent on Figure 4.31, they fell within a much wider northeast–southwest oriented swathe of such settings, which extended from PS88/89 to the north of the enclosure to the PS63–8 cluster south of it and lying west of Roundhouses 86 and 88; their distribution is rather suggestive of a broader, terrace zone of such structures.

Obviously pits and other discrete features accompanied each of the various phases. In Chapter Five, Brudenell details the pottery assemblages from one of earlier Middle

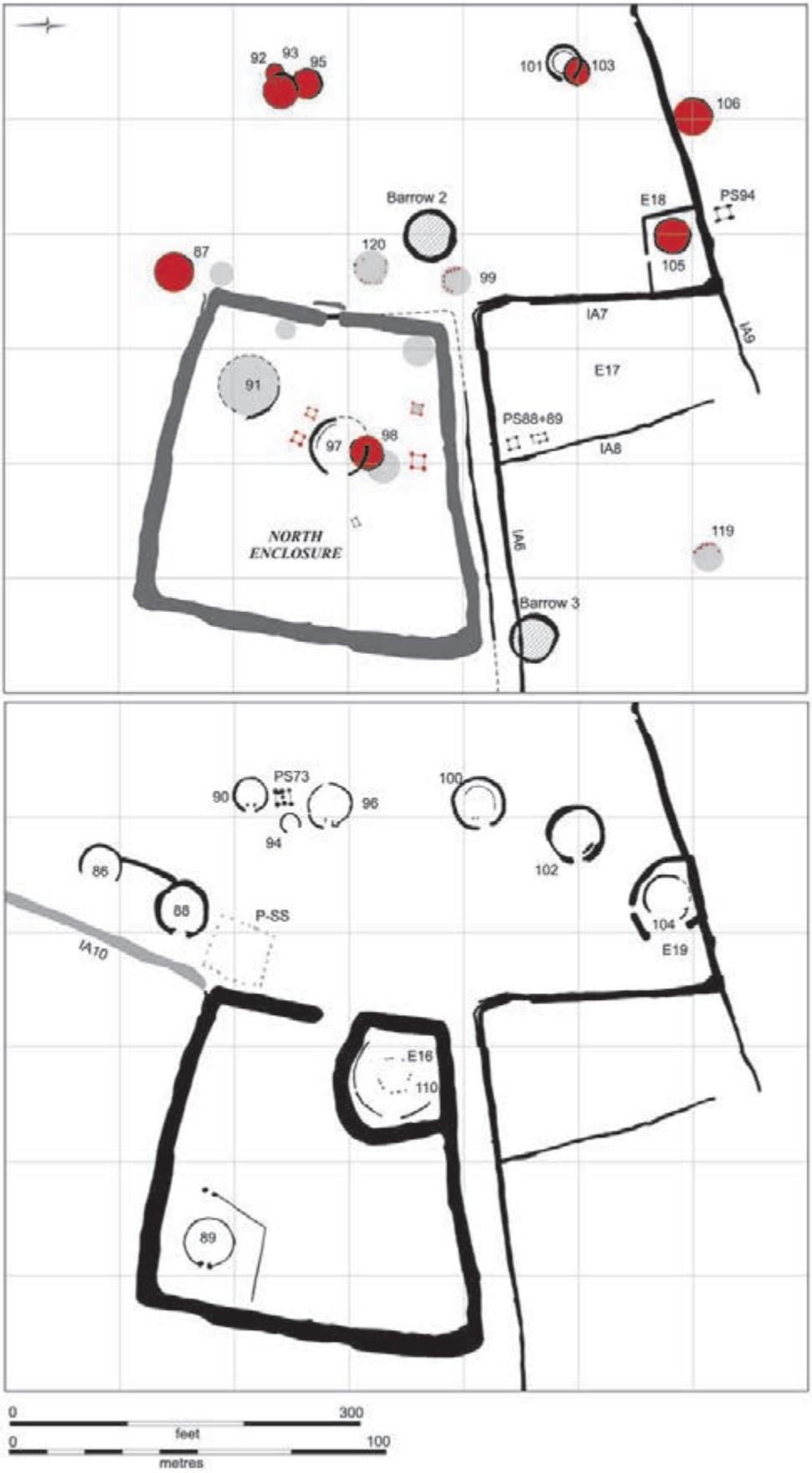


Figure 4.48. Enclosures 18/19 and North Enclosure-area phasing.

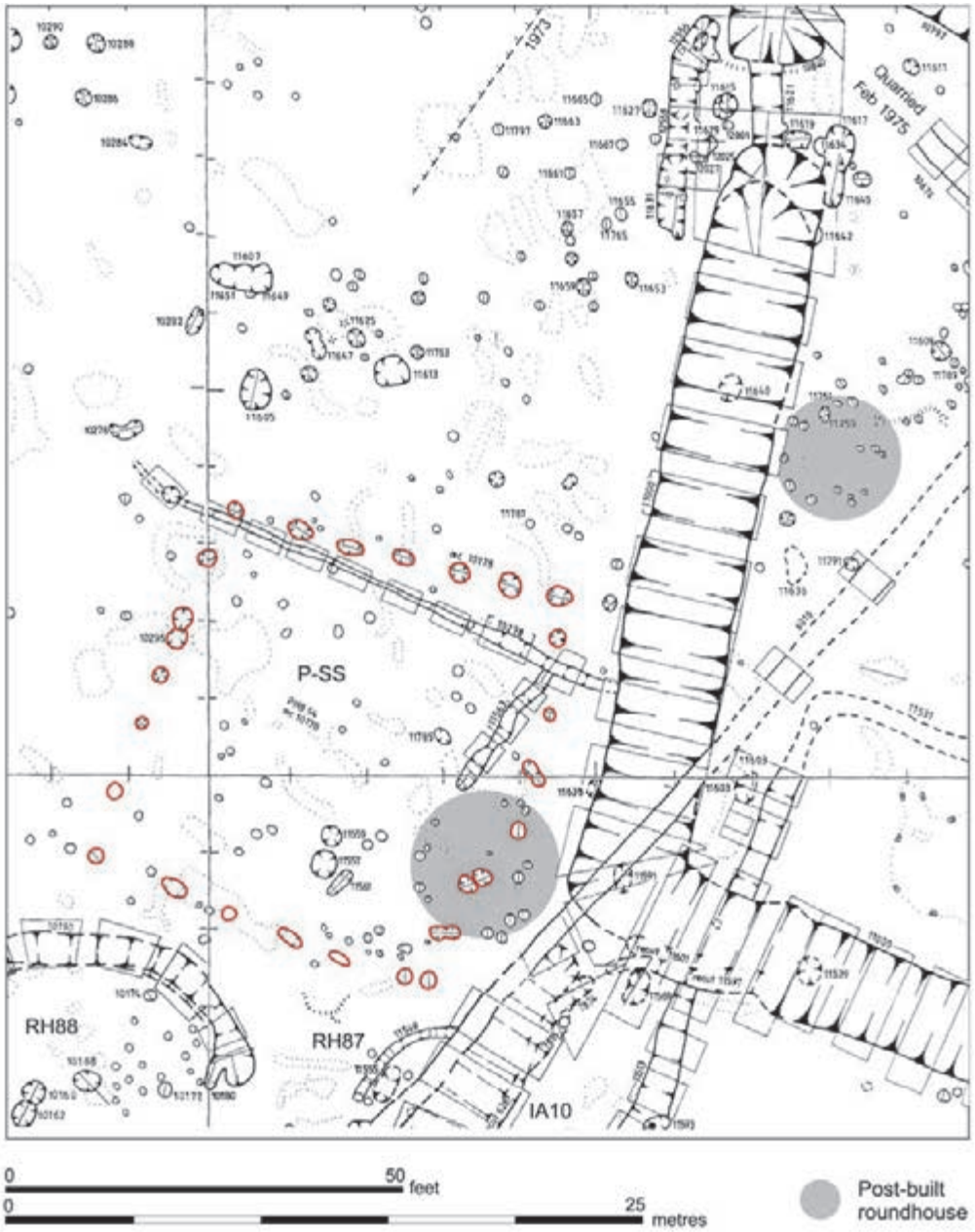


Figure 4.49. North Enclosure southwest circuit and the Post-set Square.

Iron Age date ([10910]) and four of 'later' attribution ([10920], [10922], [10924] & [10934), all but one of the latter ([10924]) having decorated La Tène-style wares.[32]

As shown on Figures 4.46 and 4.48, at sometime in the enclosure's sequence a major ditch boundary (IA10) was dug in respect to its southwestern corner, running in that direction towards the centre-swathe of the site. Figure 4.82 shows what was probably its original southern end; however, the arguments concerning its original length are complicated and will be discussed below (see *The Conquest Period … Landscape*). It is relevant to note that, tucked into the corner between it, Roundhouse 88 and the southwestern exterior of the North Enclosure, was a post-set square measuring 15m across ('P-SS'; Figs. 4.48–9).[33] Not all of its sides were equally convincing or regular, with the eastern aspect the least well defined (it is possible that its southeastern corner was 'confused' by an earlier post-circle structure). Its postholes varied from circular (*c.* 0.45–0.85m diam.) to ovoid (0.65–0.95 × 0.65–1.1m), and they were 0.15–0.4m deep. Their spacing was most consistent along the northern side (1–1.5m distance), whereas in the south they were as much as 1.8m apart. While possibly stock-related (but only if somehow fenced between its uprights), the function of this setting is unknown.

Directly relating to the fieldsystem boundaries within this area and, arguably, also reflecting upon the interpretation of the North Enclosure itself, at this point it is worth outlining the developmental sequence

Figure 4.50. MPX Distributions: top, ash, with appended notation '= fuel ash slag, not necessarily metallurgical' (note concentrations along northwest side of North Enclosure and within Enclosures 18/19) and, below, hawthorn/sloe charcoal (note the way that the perimeter of the North Enclosure is picked out by its indications).

of two much smaller, intercutting compounds, Enclosures 18 and 19.

Enclosure 18 was a *c.* 330sqm trapezoidal enclosure (13.4–16.2 × 20.0m) set at the junction of ditches IA7 and IA9 (Figs. 4.48 & 4.51). Having a perimeter ditch *c.* 0.5–1.0m across (0.25–0.5m deep), its interior would have been accessed by a 1.6m-wide entranceway located midway

along its southern side. Defined by an eastward-opening eavesgully, Roundhouse 105 was located centrally within its western half (Fig. 4.51). The latter had clearly been truncated by Roundhouse 104's eavesgully; a much larger building (11.9m diam.), this appeared to have had a very wide southeast-facing entranceway, 10.8m across. The two arcs of its gully stopped some 1.8m shy of the IA9 ditch-line; as was the case with the North Enclosure's Roundhouse 110, this was presumably in relation to a pre-existing upcast bank. Like Roundhouse 110, Roundhouse 104 was tightly enclosed within a ditched compound, in this case 'D'-shaped. With a perimeter far more substantial than the gully (1.0–2.0m wide; *c.* 0.65–0.9m deep), its 'flat' northern side had evidently re-cut been along the line of the main IA9 boundary, while its other sides arced and closely followed the circumference of Roundhouse 104, lying just 1.0–4.0m inside its line. This compound, Enclosure 19, had access at two points: one midway along its southern side, where there was a 2.1m-wide gap in its perimeter; the other, complementing its building's southeastern entrance, was much broader (*c.* 8.0m across) and may have provided access into the interior of the original, eastern rectangular enclosure (No. 18).

In this scenario, it can only be presumed that Roundhouse 105's eavesgully and the western end of its enclosure ditches had been backfilled upon the construction of Enclosure 19 (and RH104). The end result is that together Enclosures 18/19 would have had an irregular plan (Fig. 4.51). There can, however, be no doubt that Roundhouse 104 superseded Roundhouse 105 and that they clearly did not stand together. Indeed, it is possible that the floor surfaces of the latter then served as an exterior front-yard surface for Roundhouse 104.

The only dating evidence available for these features is vague – Early–Middle Iron Age – with only Enclosure 18's perimeter being more closely attributed to the Middle Iron Age and its building, Roundhouse 105, assigned to the earlier Middle Iron Age (see Brudenell, Chap. 5, below). That said, as indicated on Figure 5.11, quantities of metalworking debris – variously slag, moulds, crucibles and tuyère fragments – were recovered from the immediate area (see also Figs. 4.50–1 & 5.15). With the highest densities seen from the site, this is certainly suggestive of its specialised function.

That the enclosure occurred within an area of relatively dense, later Bronze Age *and* Early Iron Age settlement has been amply demonstrated. Not only is there the evidence of the pottery distributions (Figs. 3.3 & 4.6), but also the pre-enclosure buildings. Aside from Roundhouses 91 and 98 – both Early Iron Age – this includes Roundhouses 99 and 102, as well as the four post-circle settings identified in the vicinity (Fig. 4.48). Indeed, as Figure 4.47 attempts to convey, amid the area's myriad 'unassigned' postholes there would probably be many such building candidates. This would include a fence-line array (Fig. 4.47.A) and the potential 'half-arc' of a post-circle roundhouse (B; shown on Figs. 4.24 & 4.48), with a tight feature cluster (C) perhaps representing the internal postholes of yet another round structure. Clearly, there is no shortage of 'possibles' here and the area's sequence is likely to have been far more complicated than is portrayed.

As alluded to above, the relationship between Enclosure 19 and Roundhouse 104 has affinities to that of Roundhouse 110 and the North Enclosure's corner-compound (Enclosure 16). In both cases, their buildings were 'tightly' enclosed by quasi-circular ditched perimeters, to the point that they would not have bounded any functionally 'useful' space. Rather than demarcating their interiors, the primary purpose of their enclosures was to keep 'things' out – presumably livestock. This explanation offers insights into both the arrangement of the larger fieldsystem boundaries in the area as well as of the North Enclosure itself (Fig. 4.48). The broader area layout – when combined with the western aspect of the North Enclosure – would have been funnel-like and could have related to the herding/gathering of stock from the terrace's enclosures down into the east–west droveway running alongside the North Enclosure. What does this imply for the layout of the North Enclosure? It originally followed a fairly standard 'square-compound type layout', with its main roundhouse commanding its central interior. Its later-phase elaboration, though, would have involved the separate ditching of Roundhouse 110's compound (and the apparent 'emptying' of the main enclosure's central space), and also the fencing-off of both that building and, in the southeast, Roundhouse 89, in relation to the interior of the larger enclosure. It could be inferred from this that something was occurring within the larger enclosure's interior to warrant such masking: possibly large-scale annual stock gathering and/or slaughter.

Proposing that the North Enclosure may have had a subsequent stock-specialisation might also account for the later broadening of its main western entranceway (perhaps accompanied by the backfilling of its exterior blocking trench). It might also explain the establishment of a causewayed crossing along its northern perimeter, which would have given direct access to the droveway there (the latter's original southern boundary – IA4 – presumed to have been backfilled by then).

At the same time, while not arguing for any kind of defensive function for the enclosure, it should be recognised what a formidable barrier its main ditch-line would have presented. Comparable in size to that of the RBI Enclosure (Fig. 5.32), the quantities of Roman material in its upper ditch profile indicate that it must have remained a major earthwork up until that time (see Figs. 1.17 & 4.85). The frequency of hawthorn/sloe charcoal within its main ditch (Fig. 4.50) might hint that the enclosure's presumed interior bank was capped with a hedge (cf. the far more uniformly widespread oak/hazel distribution

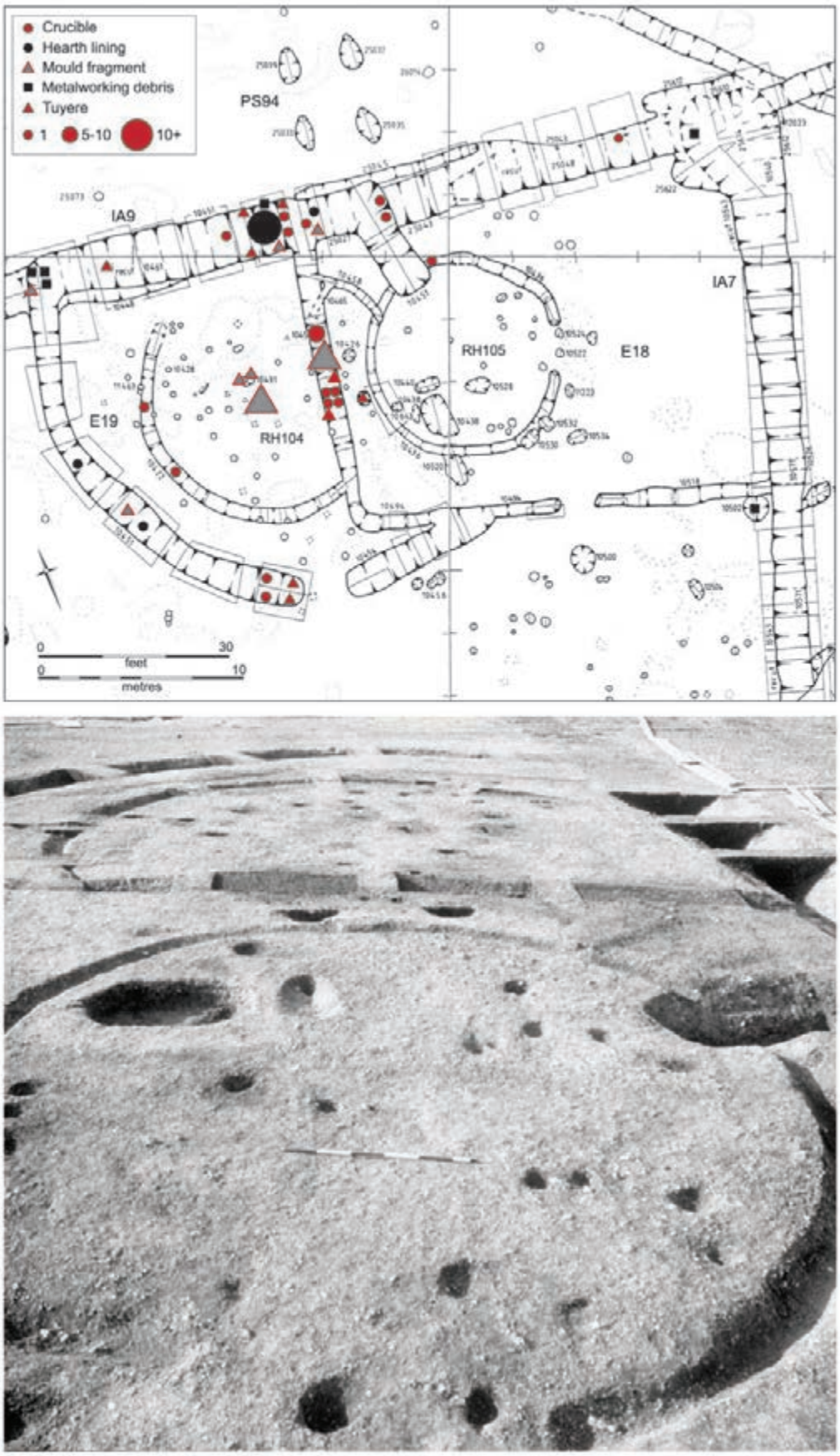


Figure 4.51. Distribution of metalworking debris, Enclosures 18 and 19 (and RH104); below, photograph of Roundhouses 104 and 105 (looking west).

in Fig. 1.17); if so, this would have made its perimeter all the more impressive.

Before progressing, it is worth stressing the unease that the plan of Roundhouse 110 still evokes. The idea that its outer wall-trench actually held a free-standing 'screen' comparable to the fence-line setting of Roundhouse 89 in the main enclosure's southeastern corner certainly has an interpretative 'neatness'. Equally, if Roundhouse 110's outer perimeter was instead building-related, then it would have been a very large and complicated structure. Even if left to just its inner post-circle alone, Roundhouse 110 would still have been a very unusual Middle Iron Age building. This is based on the fact that, unlike most houses of the time, it would have lacked either a wall-trench or surrounding eavesgully. Its post-ring was rather more regular and densely spaced than most other roundhouse post-circle settings, and also seems to have had a northern entrance, in contrast to the east/southeastern orientation of the vast majority of the period's buildings. These factors could, collectively, suggest that it was something other than just a 'standard' roundhouse.

Having a pottery assemblage of almost 10,000 sherds, the enclosure's occupation was clearly intense, with over 775 sherds (4794g) recovered from its main roundhouse, Number 97, alone. Spanning the Middle Iron Age – late fourth/third to mid first centuries BC – its pottery is detailed by Brudenell in the following chapter. As represented by the main enclosure's primary silt deposits and also Roundhouse 97, its origins lay in the earlier part of that spectrum (late fourth/third to second centuries BC). As largely attested by Roundhouse 89 and Enclosure 16's assemblages, its latter-phase elaboration spanned the second to mid first centuries BC.

There are two points to note of its chronology. First, that the dating of its termination broadly correlates with its archaeomagnetic date. Evidence that its usage *per se* apparently did not continue into the last century of the Iron Age would be its paucity of 'late' wheelmade pottery and – when compared with the Belgic Banjo and RBI – the absence of the period's coinage (see Fig. 4.4). Against this, it had relatively high numbers of La Tène-decorated wares (Fig. 4.4; see also Fig. 5.25). Concentrating in the area of the Roundhouse 110 compound (Enclosure 16), at least 31 such vessels are represented.

The second dating issue is that in Chapter Five Brudenell assigns Roundhouse 110's pottery to the 'earlier' and not the *later* Middle Iron Age, apparently at odds with the enclosure's main development schema. It is unclear how we are to account for this discrepancy as, on stratigraphic grounds, the building must have been a 'late'/secondary phenomenon in the lifetime of the enclosure. As is clear in Table 5.8, its (quite minor-scale) features actually yielded only 51 sherds, and these had the lowest mean sherd weight of any of the analysed features of the enclosure as a whole. It can, therefore, only be presumed that its few diagnostic sherds must have been of residual status and that the building's usage should instead be dated by the material in its surrounding compound ditch. Alternatively, and as hinted at above, this might indicate that the building proper did, indeed, somewhat predate the establishment of its enclosure (No. 16).[34]

Of the enclosure's other finds, at least eight fragments of rotary quernstone were found in association (see Fig. 3.2). Quantities of fired clay were also recovered, including some 14 triangular loomweight pieces; seven spindlewhorls were also found in the immediate area (see Fig. 5.16). With the latter finds clearly attesting to textile manufacture and, by extension, the role of sheep-rearing, this belies the relatively low representation of that species within the enclosure's faunal remains (NISP 13.1% *vs.* 74.1% cattle; see Rajkovača, Chap. 5 below) and must further indicate a survival bias against smaller bones.

The primary fills of the main ditches also included small fragments of briquetage, which must largely have been of residual status and probably derived from the area's Late Bronze Age occupation (see Fig. 3.2). As distinguished by Barford, however, amid this material was also a group of better-made vessels. Reminiscent of the briquetage from Gun Hill (Drury & Rodwell 1973), these were thought to be contemporary with the North Enclosure's occupation. Also apparently occurring within the enclosure's fired clay assemblage were tournette cylinders, which might attest to pottery manufacture (see Barford, Chap. 5 below; Fig. 5.16).

Sufficient metalworking debris was found in the area of the North Enclosure to indicate that metalworking was amongst the activities associated with it, at levels almost comparable to those of Enclosure 18 (Fig. 5.11). Aside from a copper alloy runnel/casing spill, three mould pieces occurred adjacent to Roundhouse 87, which also produced evidence for ironworking, with both tap and smithing slags recovered, as well as hearth bottom and lining fragments (see Fig. 5.15). Even more significant is the enclosure's concentration of metalwork finds, both iron and copper alloy (Fig. 5.11). This included the fine La Tène-style decorated belt/baldric fittings from a pit adjacent to Roundhouse 89 and an iron cleaver blade (see, respectively, Appleby and Mould, Chap. 5); these must tell of the status of its inhabitants.

The original small finds notebook includes a number of metalwork finds apparently recovered from the enclosure, but which do not appear to have ever been entered into main digital catalogue. With an Anglo-Saxon ground-surface locally surviving within the ditch's upper profile, much of the area's

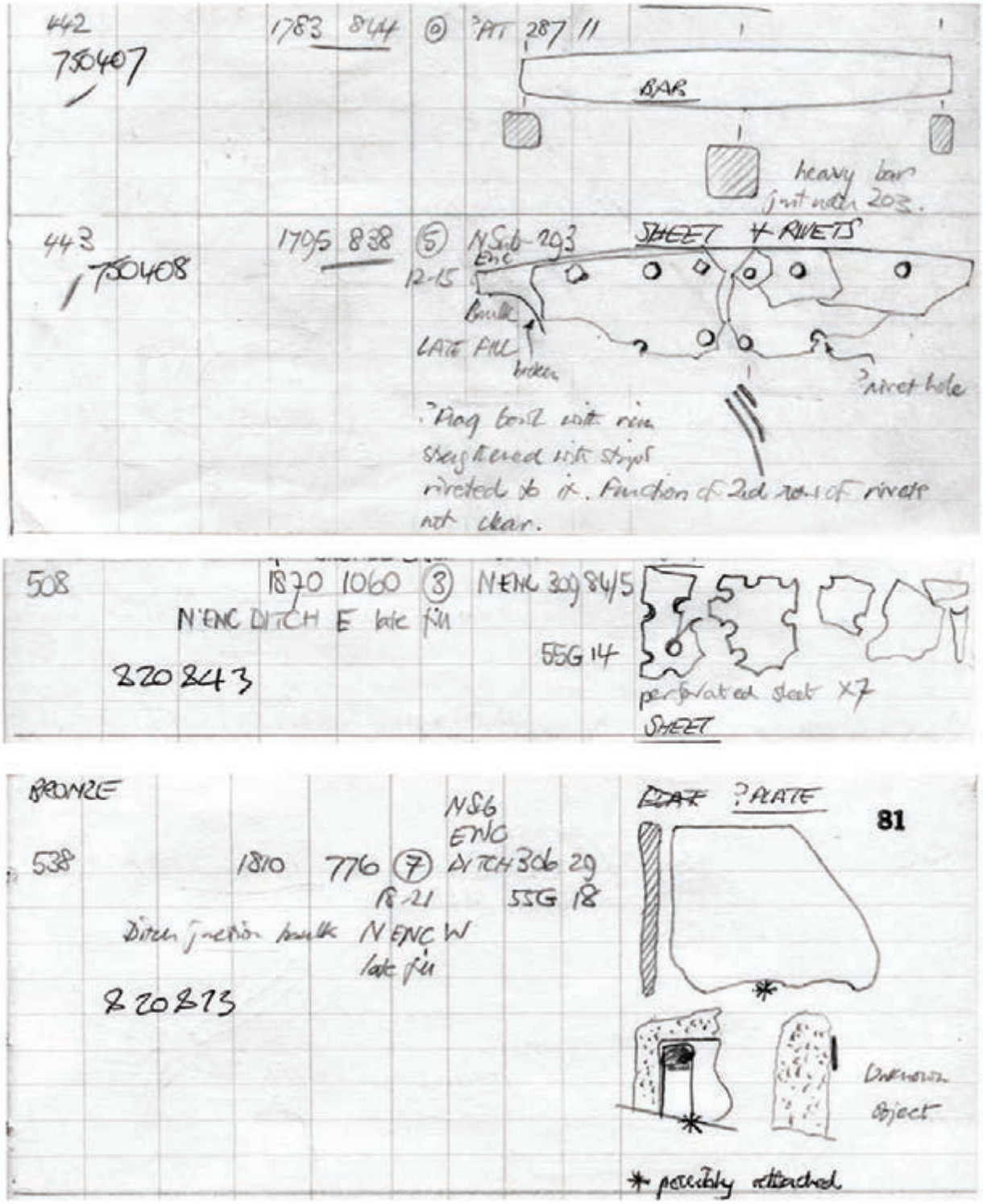


Figure 4.52. North Enclosure, notebook small finds illustrations.

metalwork derived from that horizon and is of that date; thus attributed in the notebook's catalogue, these were viewed and plotted by Hamerow (1993, table 1, fig. 180). However, there are also many small pieces that were never attributed to period. Obviously, it is difficult to be certain of their dates. A selection is shown in Figure 4.52. The most significant is Number 443 (AML 750408), part of a riveted and evidently repaired bronze bowl that came from the upper fill of the sub-enclosure's southern circuit. Due to that ditch's more minor proportions, it did not see Anglo-Saxon deposition and, accordingly, we can be relatively assured that the bowl is Iron Age: if this is the case, it must rank as a very important artefact.

Greater doubt exists concerning the seven small, perforated bronze sheet fragments from the upper profile of the main ditch (No. 508; AML 820843). No *Grubenhäuser* occurred in close proximity, making it reasonable to assume that these fragments were also Iron Age, possibly from a strainer. (The other illustrated finds amount to 'curios': a bronze bar from a pit just south of the sub-enclosure – Number 442 – and a bronze sheet adhering to an 'unknown object' [?stone, No. 538], which came from the sub-enclosure's southwestern corner.)

As detailed by Haselgrove (see Chap. 5), a number of brooches were also recovered from the area (Figs. 4.4 & 5.23). Aside from one of fourth-century BC attribution (No. 1) and another Colchester derivative of mid–later first-century AD date (No. 36; plus a less closely dated penannular, No. 48), these were Late Iron Age types and date from the mid first century BC to the mid first century AD. They may indicate a degree of enclosure usage after the accepted end point of its pottery's dating. (Indeed, a few sherds of Romano-British pottery were reported from the upper fill of one of RH89's postholes.)

As is apparent in Figure 4.4 (see also 5.23), there was a concentration of brooches in the enclosure's southwestern corner: the Colchester derivative mentioned above was recovered from its ditch's upper profile and a Colchester-type proper came from its lower, middle profile nearby (No. 27). The third in this group was a fragment of a 'Colchester construction' (No. 55) from the northern terminal of the IA10 boundary.

The 1100 Enclosure (Prehistoric Cemetery II and other Western-margin Interments)

This compound has usually been depicted as lying isolated some 40m west of the Belgic Banjo area and immediately south of the area of Anglo-Saxon Cemetery I (Figs. 4.35 & 4.37). Defined by a *c.* 1.5–2.0m-wide and 0.9m-deep ditch, this rectangular enclosure (*c.* 15.5 × 19.5m) had an entrance-gap (*c.* 0.75m wide) midway along its southern side. As a whole, it appears relatively 'pristine' (Fig. 4.53). Clearly, however, this area had to be dealt with in haste and under intense salvage conditions (see Hirst & Clark 2009, 637–8). The *Grubenhäuser* on the enclosure's eastern side (GH87) featured on the Joneses' phase plans (e.g. Fig. 1.18), as shown on *The Atlas*. However, a southwestern ditch-return ([5234]) did not (and whose exposure just stopped rather than the feature terminating as such). Similarly, a hand-drawn area-plan shows a ditch extending from the western end of the enclosure's southern side, but which was not further traced beyond a *c.* 1–2.0m-wide clearance swathe around the compound's main ditch (and was omitted from *The Atlas* plan; see, though, Hirst & Clark 2009, fig. 233). The evidence, therefore, suggests that there were more features within this area than have been documented.

Apart from the burials described below, just a single small pit was recorded within the enclosure's interior. Otherwise, only four pits are shown along its southern exterior, two of which are of pre-Iron Age attribution – 12948/F. 4741 and 12946 – the latter, Beaker pit being cut by the enclosure (Fig. 4.53). With excavation in this area focussing upon cemetery features, we have not been able to establish what finds were recovered from the enclosure's ditch proper, although no Early or Late Iron Age pottery was evidently present. The paucity of features within the area cannot therefore be taken as necessarily attesting to a lack of settlement, and the rectangular enclosure may not have been entirely discrete. Indeed, given the conditions, all of the associated burials may not even have been recovered.

Three cremations were found within the enclosure's western interior quarter (Fig. 4.53):

Cremation 85 (1092N × -77E) – Adult Female
No data in notebooks, microfiche or folders.
Bone: Poor preservation; incomplete burning; white–blue in colour; 420g; Max L. 76mm.

Cremation 95 (1067N × -56E; Fig. 4.55) – Adult (*Maturus*)
Notebook 24.109; 30.169–170
Grave pit: Regular 'saucer-shaped' pit 4″ deep (*c.* 10cm).
Pit fill: Moderately charcoally.
Finds in fill: Shattered calcined flints.
Grave goods:
95.1 Possible iron stud
95.2 (AML 127) Iron wire brooch with four-coil spring and internal chord. Possible boss at shoulder of round-sectioned bow – impossible to be certain due to corrosion. Part of catchplate remains, probably open, but break precludes certainty. Other iron corrosion and burnt bone in box. Tip of pin survives, corroded to another piece of metal (L >58mm; incomplete). Dating: La Tène (D1b)–D2a on Continent; probably early to mid first century BC in Britain (see Haselgrove, Chap. 5, No. B1).
Bone: Fragments 1″–4″ found, often at the edge of the pit. Some skull and long-bone fragments were identifiable. The bones were not thought to have been ritually crushed.
Remarks: No signs of *in situ* burning; thought to have been Anglo-Saxon.

Cremation 96 (1091N × -60E) – Adult (*Maturus*)
Notebook 24.106
Grave pit: Squarish, with rounded corners.
Pit fill: Pebbly light brown fill with charcoal and possibly burnt pebbles (concentrated in a layer at base of pit).
Grave goods: None.
Bone: Mainly an indeterminate mass, however some larger fragments of skull and long bones present. Deteriorated nature of bone make recovery of these larger fragments impossible.
Remarks: Cremated bones appear to have been laid on

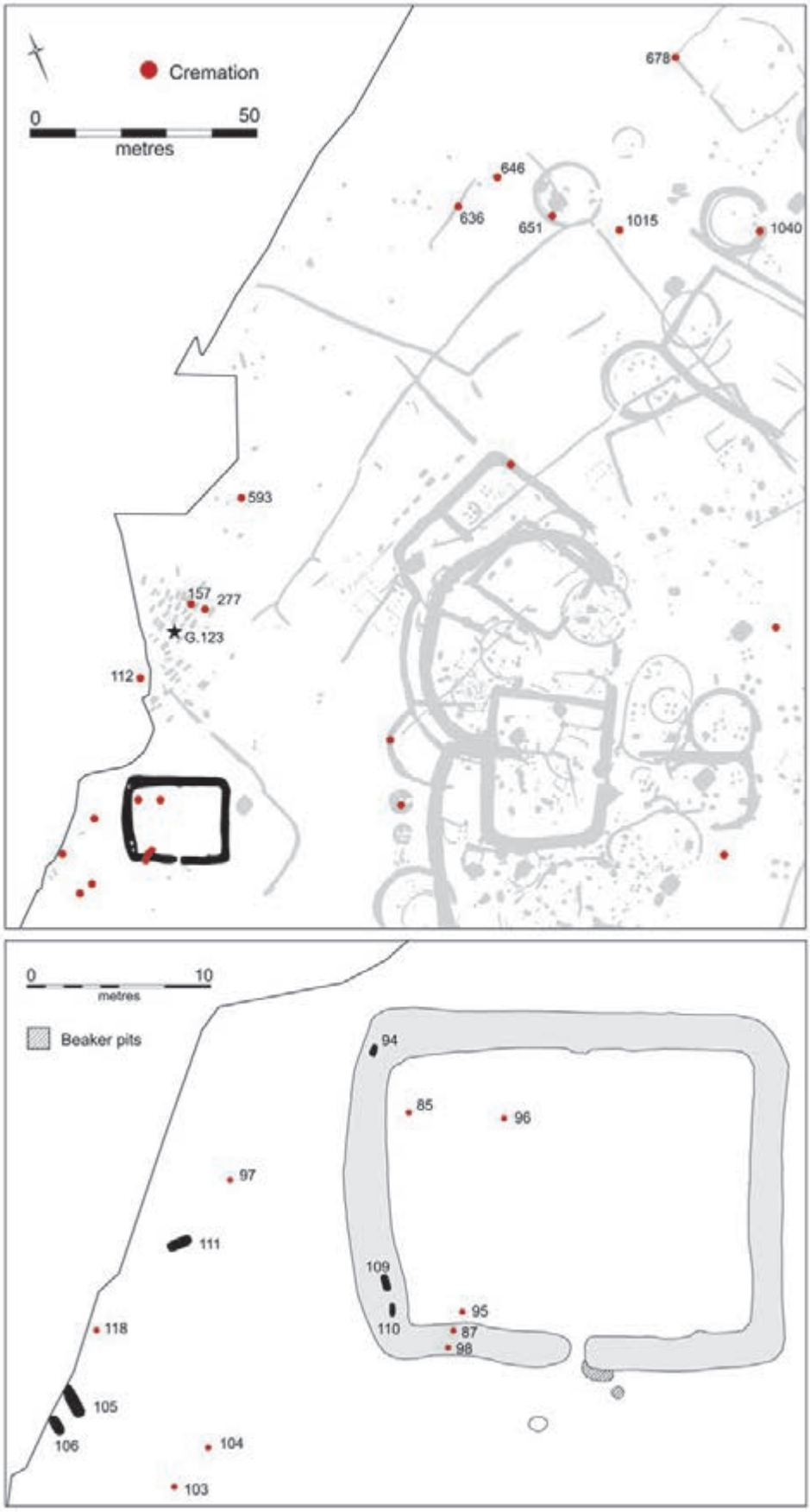


Figure 4.53. 1100 Enclosure and Cemetery II.

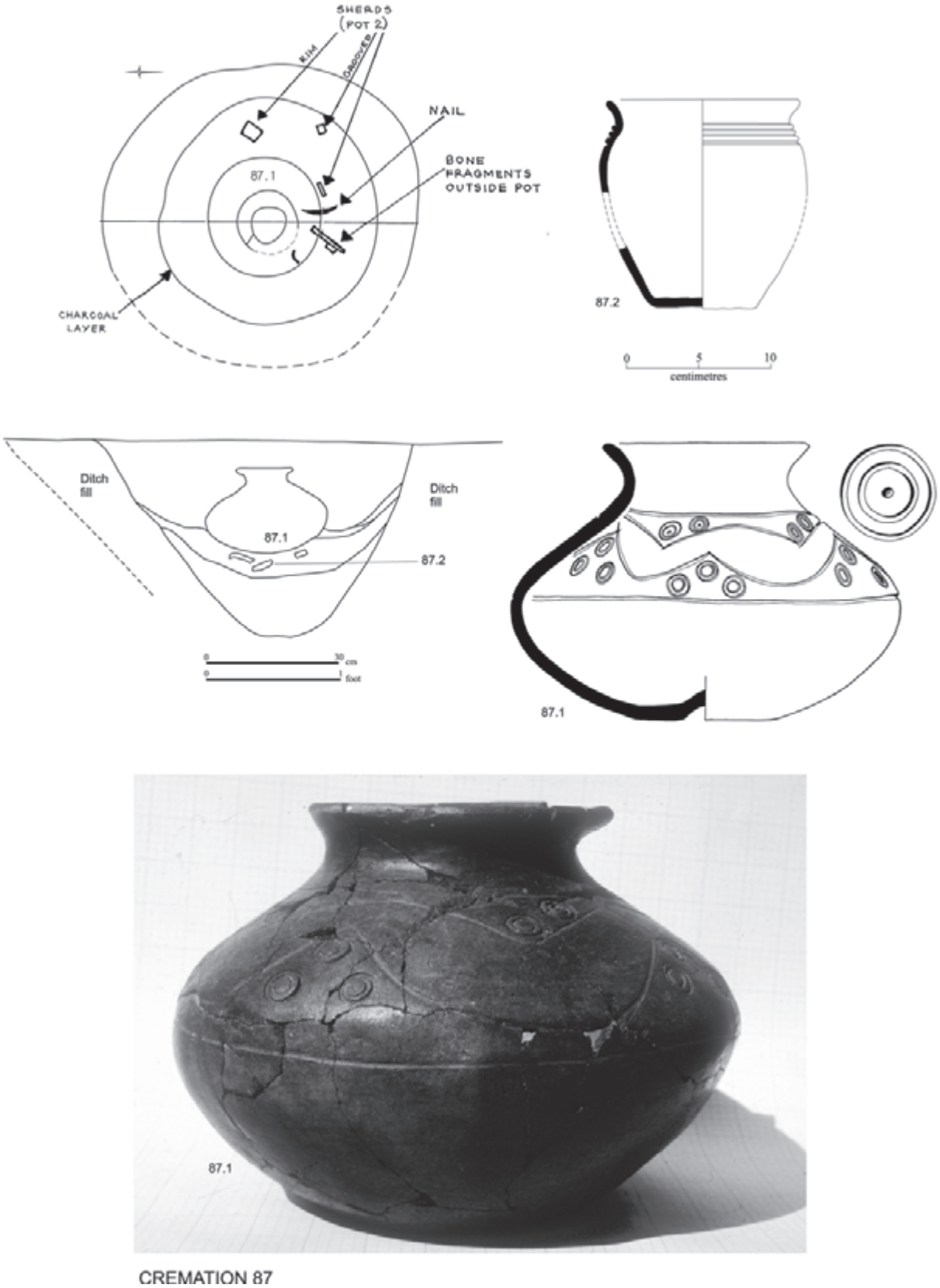


Figure 4.54. Cemetery II, Cremation 87.

top of the layer of reddened pebbles; also down as Anglo-Saxon.

Two cremations were also found in the ditch itself (Fig. 4.53–5):

Cremation 87 (1053N × -69E; Fig. 4.54) – Adult Male
Notebook 24.107–10
Grave pit: Roughly circular.
Pit fill: No data, though section shows at least two fills around urn.
Grave goods:
87.1 A globular vessel in NSP fabric. The vessel is decorated with incised flowing lines and groups of incised/stamped circles (Rim 100mm; EVE 0.58; see also Fig. 5.24). There is a similar vessel from Langenhoe 111 Site Red Hill 89 associated with a pedestal bowl. At that site there are two distinct contexts: a pit below the Red Hill and, also, within the Red Hill itself. The Red Hill contained Cam Forms 254 and 245, which can be dated to at least the first half of the first century AD. However, the pottery was fragmentary and was almost certainly re-deposited. Although it is difficult to assign a date to the Cremation 87 pit and its associated pottery, it is likely to be the second half of the first century BC to the first half of the first century AD.
87.2 Jar in NSP fabric. This vessel was under 87.1 and described as being in sherds, which included the rim and upper quarter of the jar, also part of the lower half and base (Rim 160mm; EVE 0.26). The form is Cam 229A and occurs at Billericay; early to mid-first century AD (I. Thompson: 'later first century BC'; see Chap. 5, below).
87.3 Possible nail (part iron, part iron stain) found within cremation urn, with head located just under the rim.
Bone: Poor preservation; complete burning; white–blue in colour; 1245g; Max L. 44mm.

Cremation 98 (1050N × -70E; Fig. 4.55) – Adult Male
Notebook 30.172–3
Grave pit: Roughly circular. *c.* 0.61m in diameter and 0.41m deep.
Pit fill: No data.
Grave goods:
98.1 Jar in NSP fabric, with part burnished surface. The fabric is discoloured and very poorly fired. It has been damaged by fire, probably post manufacture. There are three cordons on the shoulder (Rim 125 mm; Ht. 220 mm; Base 100 mm; EVE 0.96). Mucking product (CK01); AD 50/60–80/90 (I. Thompson: 'likely to be post-Conquest'; see Chap. 5, below).
Bone: Large amount of calcined bone excavated, with some of it in larger fragments, of which J. Appleby reports: Total weight 676g, lightly burnt (<5 % white, >90 % creamy yellow under the mud) and in large pieces. The complete body is represented, although no teeth (quite probably missed if excavated from gravel); longest fragment, 122mm. Unsexed young adult (post-cranial elements fused, skull unfused), with no obvious overlapping fragments nor pathologies.
Remarks: Other pot sherds found are either part of the same damaged cremation urn, or another pot of same type; also down as Anglo-Saxon.

In addition three inhumations were found dug into the *lower* fills of enclosure's southwestern boundary (Fig. 4.53):

Grave 94 (1103N × -84E)
Notebook 29.9–10
Grave pit: Squared oval in plan. Cut into clean gravel fill of '1100 enclosure' ditch.
Pit fill: Brown to black-brown.
Grave furniture: Black-brown coffin stain surrounding grave.
Grave goods:
94.1 Two sherds of 'red pottery with black cores' found within grave fill.
Bone: No bone found, only a light ginger (iron rich?) stain of head silhouette and loose blotchy gravel where the body may have lain.
Remarks: In ditch (handwritten sheet labelled 'Pre')

Grave 109 (1060N × -80E)
Notebook 24.129
Grave pit: In enclosure ditch.
Pit fill: Coffin stain was bounded above and below by a layer of hard reddish brown sand, apparently natural.
Grave furniture: Coffin stain.
Grave goods: None.
Body: An incomplete, dark brown body stain.
Remarks: Thought to possibly be a child's grave; appears to have been excavated by workmen (also down as Anglo-Saxon).

Grave 110 (1056N × -80E)
Notebook 24.129
Grave pit: In enclosure ditch.
Pit fill: No data.
Grave furniture: None.
Grave goods: None.
Body: Body stain on side of ditch near to bottom, on the same side as Grave 109. Possibly of a flexed child burial, but the stain was partly destroyed during clearing of the ditch fill.
Remarks: Appears to have been excavated by workmen; also down as Anglo-Saxon.

Unlike the cremations described above, without accompanying grave goods (Grave 94's sherds aside) there is no firm basis by which to be certain of the date of the ditch-set inhumations. That they occurred near the base of the ditch, as well as having seemingly been aligned along its length, could suggest that they were, in fact, Iron Age. However, two inhumations along the quarry's edge and just outside the enclosure, Graves 107 and 108, were clearly part of Anglo-Saxon Cemetery II (see Hirst & Clark 2009, fig. 351).

Also occurring at the quarry-edge west of the 1100 Enclosure, Graves 105 and 106, and nearby No. 111, could be of similarly late attribution and relate to the Anglo-Saxon cemetery. Indeed, what was thought to be possibly a sherd of decorated Anglo-Saxon pottery was recovered from Grave 106. However, cremations evidently did not feature within the Anglo-Saxon cemetery immediately to

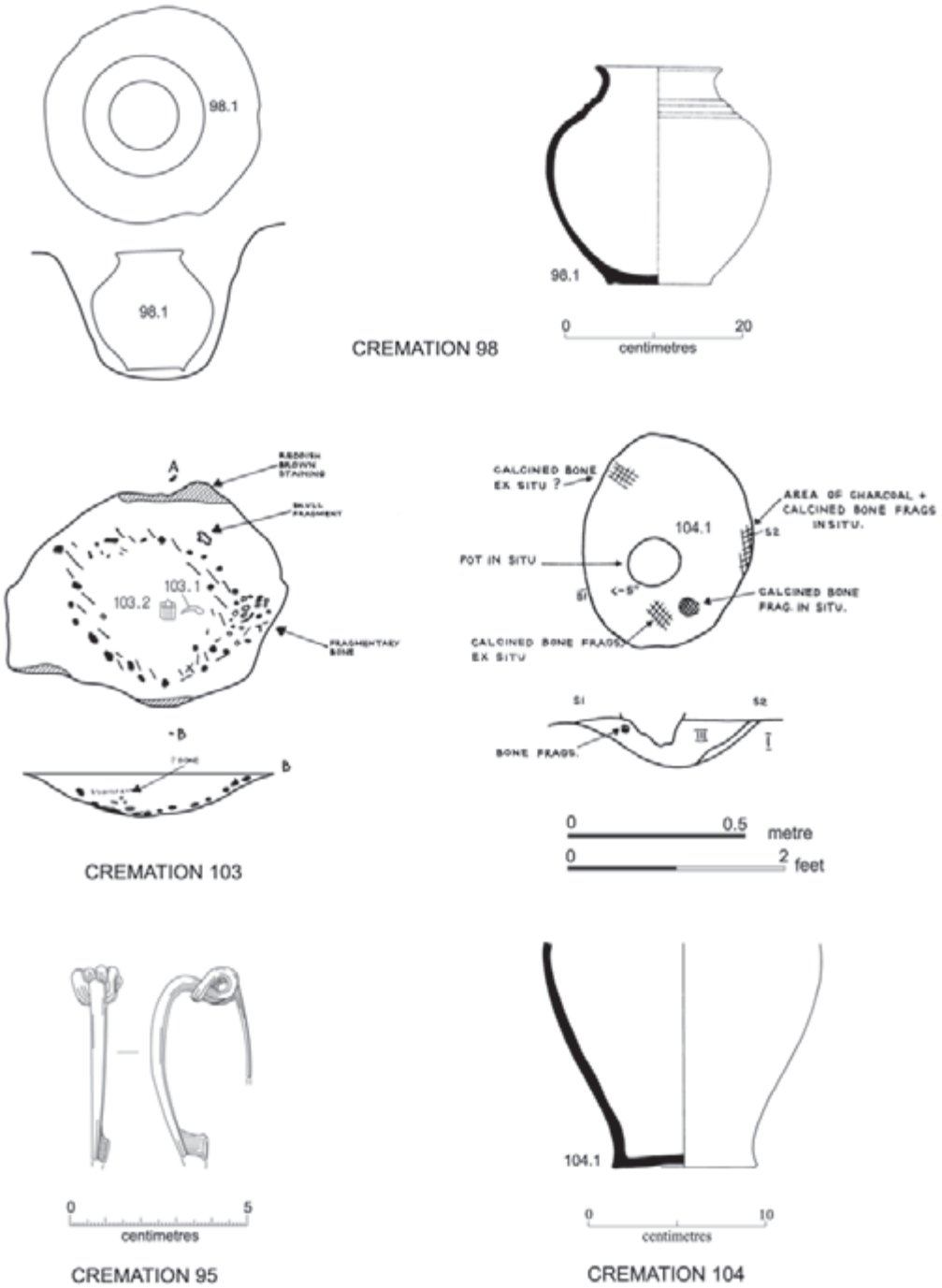


Figure 4.55. Cemetery II, Cremations 95, 98, 103 and 104.

the north (the date of the two cremations that are present in that area will be discussed below). The four cremations found west of the 1100 Enclosure are therefore thought to be Iron Age, although the attribution of the vessel accompanying Cremation 104 might hint at a slightly later date (Figs. 4.53, 4.55)

Cremation 97 (1080N × -108.6E) – Adult
Notebook 30.167–8

Disturbed by both animal burrowing and squashed by quarry machinery, it was noted that 'this feature was a wash-out!'. Occurring with a small quantity of calcined flint pebbles, there was relatively little bone; what there was being up to 6″ long (*c.* 15cm) and, in some cases, poorly calcined.

Cremation 103 (1052N × -119E; Fig. 4.55) – Adult Male
Grave pit: Irregular circle, measuring 0.79 × 0.6 × 0.12m deep.
Pit fill: Dark greyish loam with reddish-brown staining at

edges in some places. Bottom of pit lined with a ring of reddened sand and pebbles.

Grave goods:

103.1 (AML 398) Head of hinged copper alloy brooch with start of pin. Flat bow with longitudinal ribs; now broken. Burnt. Strip/Aucissa/Hod Hill type. Dating: first two thirds of first century AD? AE 91 (too fragmented to illustrate; see Haselgrove, Chap. 5, No. B7).

103.2 As shown on Figure 4.55, some manner of bronze 'box' also apparently accompanied this burial; however, no details whatsoever are available concerning it and nor can it be located today. This is most unfortunate as it potentially seems to have been an extraordinary object, perhaps having affinities with the decorated sheet-bronze box/canister accompanying one of Wetwang Slack's cart burials, although that was of much earlier date and smaller (No. 2/WS454: Dent 1985 and Giles 2012, 157–8, fig. 5.15; see, also, e.g. Allen *et al*. 2012, 299, fig. 3.90). Some manner of a Roman seal box would be another possibility, but its profile appears to have been much 'taller' than these.

Bone: Poor preservation; incomplete burning; white in colour; 58g; Max L. 68mm.

Cremation 104 (1032N × -113E; Fig. 4.55) – Adult Female
Notebook 30.180

Grave pit: Oval; discovered after the dragline had cleared area.

Pit fill: Yellowish light brown loam with a few pebbles. Negligible traces of charcoal.

Finds in fill: Two calcined flints.

Grave goods:

104.1 Storage jar body and base only, in GVC fabric. AD 70+.

Bone: Large number of mainly long bone fragments found *in situ* outside the pot, situated around the underside of the pot belly, with some under its base. Bone appears to have been selected from the pyre for burial as no pyre debris was present. Incomplete burning; white in colour; 534g; Max L. 58mm.

Cremation 118 (1053N × -135E)

Remarks: Exposed along the eastern edge of excavation, all that was recorded of this feature was 'bowl & pottery concentrated in the top inch of ice … Obviously less than half left, most important bit lost'.

While of definite Middle/later Iron Age attribution, there is no obvious functional interpretation for the 1100 Enclosure itself, aside perhaps from originally serving as a small stock pen. It could have simply been intended for burial from the outset. Of the burials associated with it, only Cremations 87 and 95 are of definite Iron Age date. The others within its interior (Cremations 85 & 96) are essentially undated. Cremation 98, within its ditch fills (adjacent to Cremation 87 at the enclosure's western front), would seem to be of Early Roman attribution. The three inhumations within its ditches also lacked any direct dating evidence and could equally have been of Late Iron Age, Roman or even Anglo-Saxon date. The latter is certainly likely to be the date of the three inhumations laying west of the enclosure, and at least two of the four cremations within that area seem to be of Early Roman attribution (Nos. 103 & 104). What can, though, be said with some certainty is that cremations do not seem to feature within Anglo-Saxon Cemetery II and, based on this, any undated cremations within this area are likely to have been 'early' (i.e. pre-Anglo-Saxon). This will be further outlined below.

In addition to the many cemetery-related interments that are described in this chapter were a number of other cremations and inhumations dispersed across the site, generically ascribed as 'prehistoric' (see Fig. 1.23). While the latter were largely identified as such on the basis of their crouched body position, only very few had any accompanying grave goods and their pre-Roman assignation cannot be certain. The most clustered grouping of these occurred in a quasi-linear arrangement of five cremations in the western mid-field, in the vicinity of Roundhouses 82 and 83, to the northeast of the 1100 Enclosure (see Figs. 4.53, 4.56). There, two had brooches, with the second of these actually cutting the eavesgully of Roundhouse 83:

Cremation 636 (1526N × 155E; Fig. 4.56) – Adult (*Maturus*)
Notebook 122.49

Grave pit: Irregular trapezoid, due to truncation by scraper track. 26″ diameter × 10″ deep (0.66 × 025m; excluding obvious burrows).

Pit fill: Dark brown pebbly loam with burnt bone and charcoal.

Grave furniture: No data.

Grave goods:

636.1 Bow and part of spring of copper alloy Colchester brooch. Curving bow of rounded profile. Very short wings. Probably six-coil spring with external chord and hook. Burnt? L. 39mm. Dating: earlier first century AD. AE 256 (AML 715317).

636.2 Red and black flint gritted sherd (Iron Age?).

636.3 Burnt flints.

Bone: Burnt bone fragments of maximum size 1.5″ (38mm).

Cremation 651 (1520N × 225E; Fig. 4.56) – Adult (*Maturus*)
Notebook 138.77–8

Grave pit: Squarish with rounded corners.

Pit fill: Very dark charcoally fill with burnt bone and pebbles. Edge of pit fire-reddened.

Grave furniture: No data.

Grave goods:

651.1 Bow of Simple Gaulish/Continental Colchester type copper alloy brooch. Flat, tapering bow is only very slightly curved in profile. Catchplate pierced. L. 90mm from drawing. Two coils of the spring/start of chord are all that were observed. Stead and Rigby (1989) Type B (Lab. No. 715308). Dating: Augustan on the Continent; the King Harry Lane seriation implies they were still placed in British burials towards the mid first century AD. AE 271 (AML 715308; see Haselgrove, Chap. 5, No. B4).

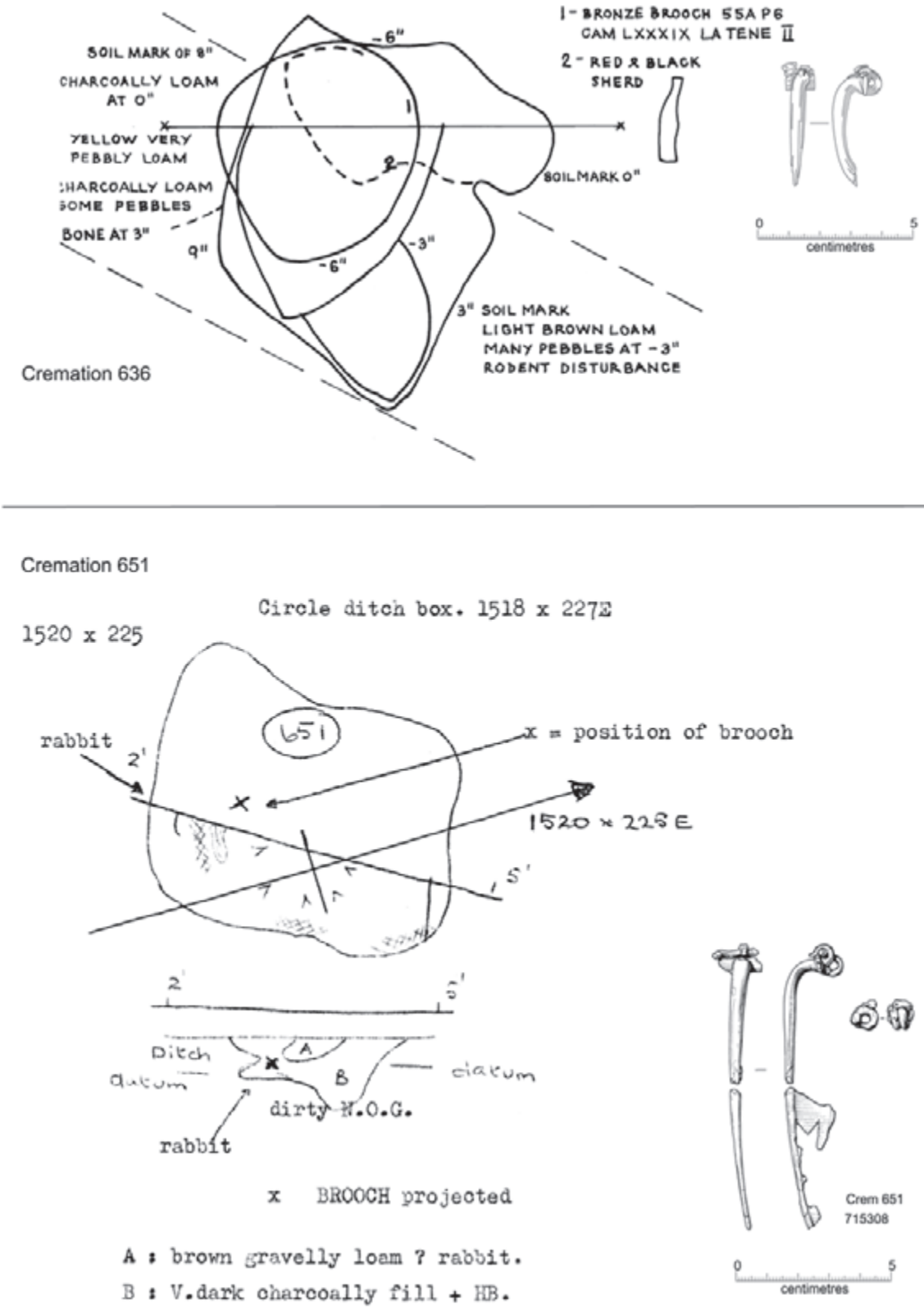


Figure 4.56. Cremations 636 and 651.

Bone: No data.

Remarks: Unusual square shape and large size led excavator to think this might have been the actual burning place for the body. Much animal disturbance by rabbits.

None of the other cremations at this point had any grave goods or dating evidence. Of the eastern two (Crems. 1015 & 1040) – one an adult and the other having both adult and infant remains – one was

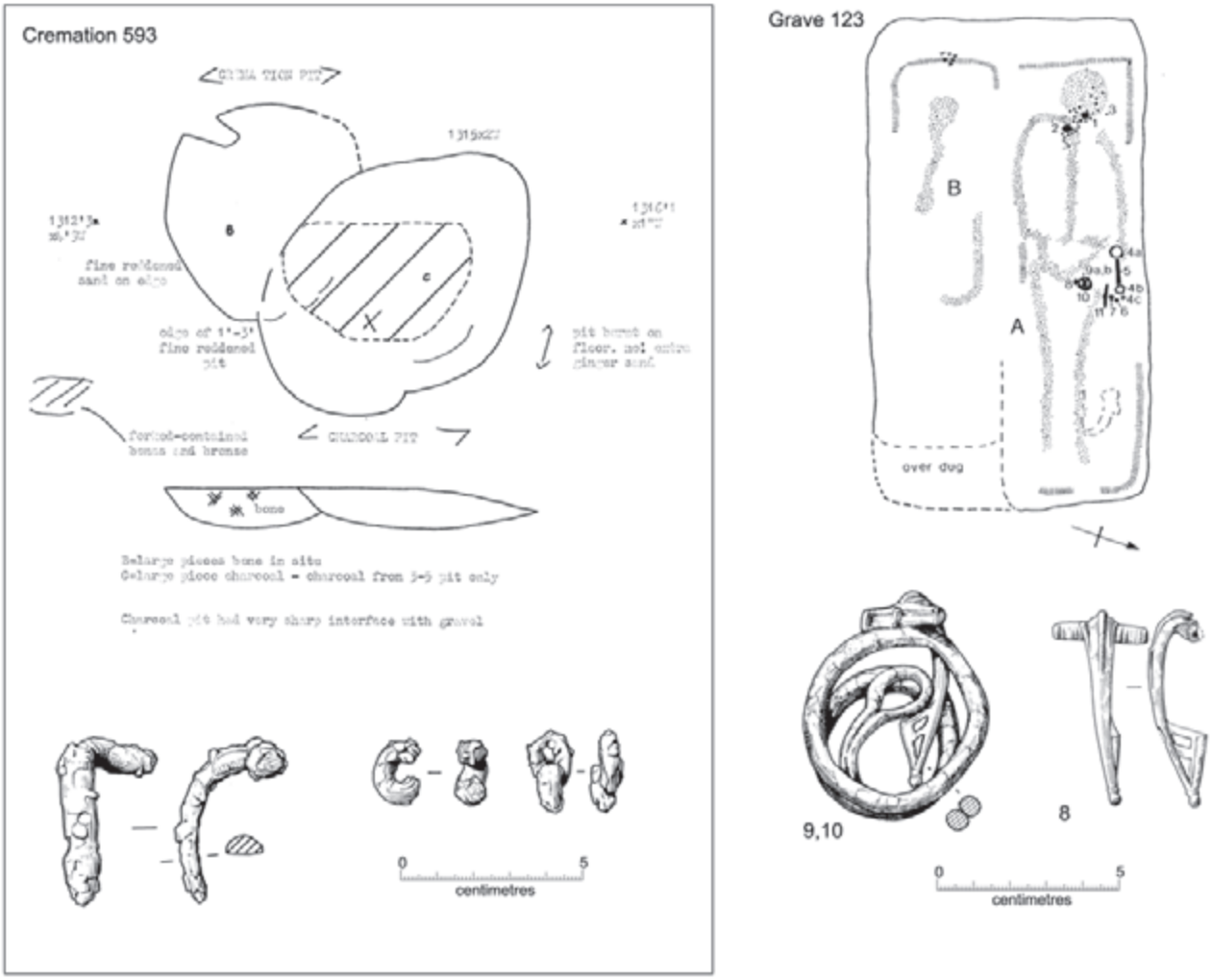


Figure 4.57. Cremation 593 and Anglo-Saxon Grave 123 (with earlier brooch).

apparently cut into the area of Roundhouse 82. There was obviously, though, some confusion in their notebook entries and both received the same grid coordinates (this presumably being why neither appeared on the relevant *Atlas* plan). The group's other interment, Cremation 646 (1550N × 182E), was also adult (no identification was made of the bone from Cremation 678 lying north of this cluster and in the area of Enclosure 20: 1635N × 315N).

As indicated on Figure 4.57, a burnt copper alloy 'bow brooch' occurred with Cremation 593 (not examined by Haselgrove; see Chap. 5), along with what seems to have been iron chain-links; there was no reporting of its accompanying calcined bone. This lay midway between the Roundhouse 82/83 'cluster' and Anglo-Saxon Cemetery I (Fig. 4.53). There were only two cremations within the latter (Hirst & Clark 2009, fig. 185); one was undated (Crem. 277), while the other, said to be 'Belgic' – Cremation 157 (an adult) – apparently had a number of pottery sherds and base of vessel survived *in situ*.[35] In all likelihood, Cremation 277 was also of that date and, therefore, unlike the site's other Anglo-Saxon cemetery (No. II), this did not include cremations of the period.[36] As outlined above, this has significant ramifications for the dating of the burials in the 1100 Enclosure-area.

One of the inhumations in Anglo-Saxon Cemetery I (No. 123A; *ibid*., 372–5, fig. 195) had, along with a number of contemporary grave goods, a first-century AD brooch, probably a Colchester Derivative (C. Haselgrove pers. comm.; Figs. 4.53 & 4.57). Found corroded together with two iron rings, with leather and textile adhering, this is the only 'early' such brooch within any of the Anglo-Saxon graves (as discussed by Haselgrove, Chap. 5, a number were, though, associated with the site's *Grubenhäuser*: Nos. 2, 12, 13, 25, 28, 39 & 31). Although very widely dispersed, taken as a whole, the evidence suggests that a 'clustering' of Late Iron Age cremations occurred north of the Banjo/Enclosure 13-area, which may have continued southwestwards ('behind' the Banjo) to the 1100 Enclosure and its cemetery.

The Belgic Banjo Complex (and Prehistoric Cemetery III)

Involving 14 separate compound components and some 29 round structures, this proved to be one of the most complicated enclosure sequences ever tackled in British archaeology. Its seemingly straightforward cropmark register – dominated by what appeared to be a lopsided 'keyhole-shaped' configuration (giving rise to its 'Banjo' entitlement)[37] – offered little warning of its true nature. As is evident in the ongoing fieldwork aerial photographs (e.g. Fig. 4.58), many areas had to be dug right against the quarry's face and the looming threat of its progression. Parts of its plan are obviously incomplete (see Fig. 4.59), and its excavation was probably too hasty (note the stratigraphic inconsistencies on Figs. 4.60 & 4.65). Such a dauntingly complex sequence would always have been challenging, even without those excavation conditions. In former days such a complex's archaeology might well have seen its own separate volume publication, perhaps comparable to Orsett 'Cock' or Kelvedon (Carter 1998; Rodwell 1988).

The 'Banjo's' irregular and obviously accumulative plan clearly demonstrates that it was a focus of major long-term settlement (Fig. 4.59). Despite this complexity, there seemed to be something definitely wrong with its chronology as understood by MPX. As shown in Figure 4.2, during MPX all of its enclosure-components bar two had been attributed to the Iron Age. Yet, the distributional plot of the site's Roman pottery (Fig. 4.85) indicated that this attribution must be largely erroneous and that many of its elements must have been of later date. Based on this and the occurrence of kilns within its axes, many of its components had been included in the first draft of our Roman volume as reflecting some manner of Early Roman industrial complex. However, upon writing this book and working forwards in time from a prehistoric perspective, there was increasing apprehension concerning this (Roman-dominant) interpretation. This was largely due to the recognition of The Plaza's Late Iron Age ceremonial complex and that surely the terrace must have had an accompanying populace. Equally, there was an instinctive unease with assigning the 'Banjo's' concentric-circular enclosure forms to Roman times, particularly as this would entail the dismissal of so much MPX phasing: MPX had evidently worked on its sequence for a considerable time and it simply seemed inconceivable they would have got so much wrong. (But then, as outlined below, the weakness of their interpretation of the complex's functional role did not particularly engender confidence. We are not, though, for a moment complacent about this, as the complex still deserves a far greater level of detailed interrogation of its stratigraphic and depositional record than current resources allow.)

In the light of this, various explanatory mechanisms were explored. Could, for example, we be seeing some manner of 'archaic' community, either not having access to, or else consciously denying the use of, Late Iron Age wheelmade wares? Falling as the site does within the 'long shadow' of Camulodunum/Colchester, this seemed a most unlikely scenario. Nor would an answer seem to lie in the close scrutiny of the complex's previously identified Middle Iron Age pottery and features; as indicated in Figure 4.3, these are obviously highly incomplete and can only represent a small fraction of the site's true totals. The only realistic way to address this dating discrepancy would be if much of the site's Late Iron Age pottery had, in the course of post-excavation, been subsumed within the recorded Roman assemblage. Accordingly, Isobel Thompson was asked to review the latter. As she outlines in Chapter Five, while not without a measure of ambiguity, this would seem to be the case. This result, moreover, accords with the Late Iron Age finds within the 'Banjo's' area, both coins and brooches (see Fig. 4.4) and its high density of *Terra Nigra* and *Terra Rubra* pottery (most of these, though, are local imitation products; see Thompson and the second *'Style in Landscape'* contribution in Chap. 5). There can now be little doubt that this complex saw substantive Late Iron Age/Conquest Period usage.

However, aside from the fact that there is/was no overall quantification or attribution of the later prehistoric pottery from this area, as is evident in Figure 4.69 almost all of its main enclosure-components are picked out by both Late Iron Age and Conquest Period/Early Roman wares. As detailed in the Roman volume, the latter amounted to almost 21,500 sherds (162.84 EVEs), but only *c.* 560 (1.79 EVEs) were not Mucking kiln products. The Conquest Period/Early Roman wares are likely to derive from the 'Early' kilns excavated within the immediate vicinity (with 1044 of such sherds being burnt). The smaller number of non-local kiln sherds present mainly derived from flagons, beakers and bowls of local and regional imports. The majority pre-date AD 130/40, with only 36 being of later fabric-types (post-AD 200), almost all of which were from the upper fills of features. While the pre-second century AD non-kiln material is sufficient to attest to a limited degree of post-Conquest occupation, much of the Early Roman activity within this area would seem to have been of an industrial character.

Written by Ruth Leary (née Birss), the archives include a succinct tentative phasing summary of the Banjo complex's sequence. Definitely attributing it as the terrace's 'Belgic' settlement, the first section originally ended with the author's mailing address.

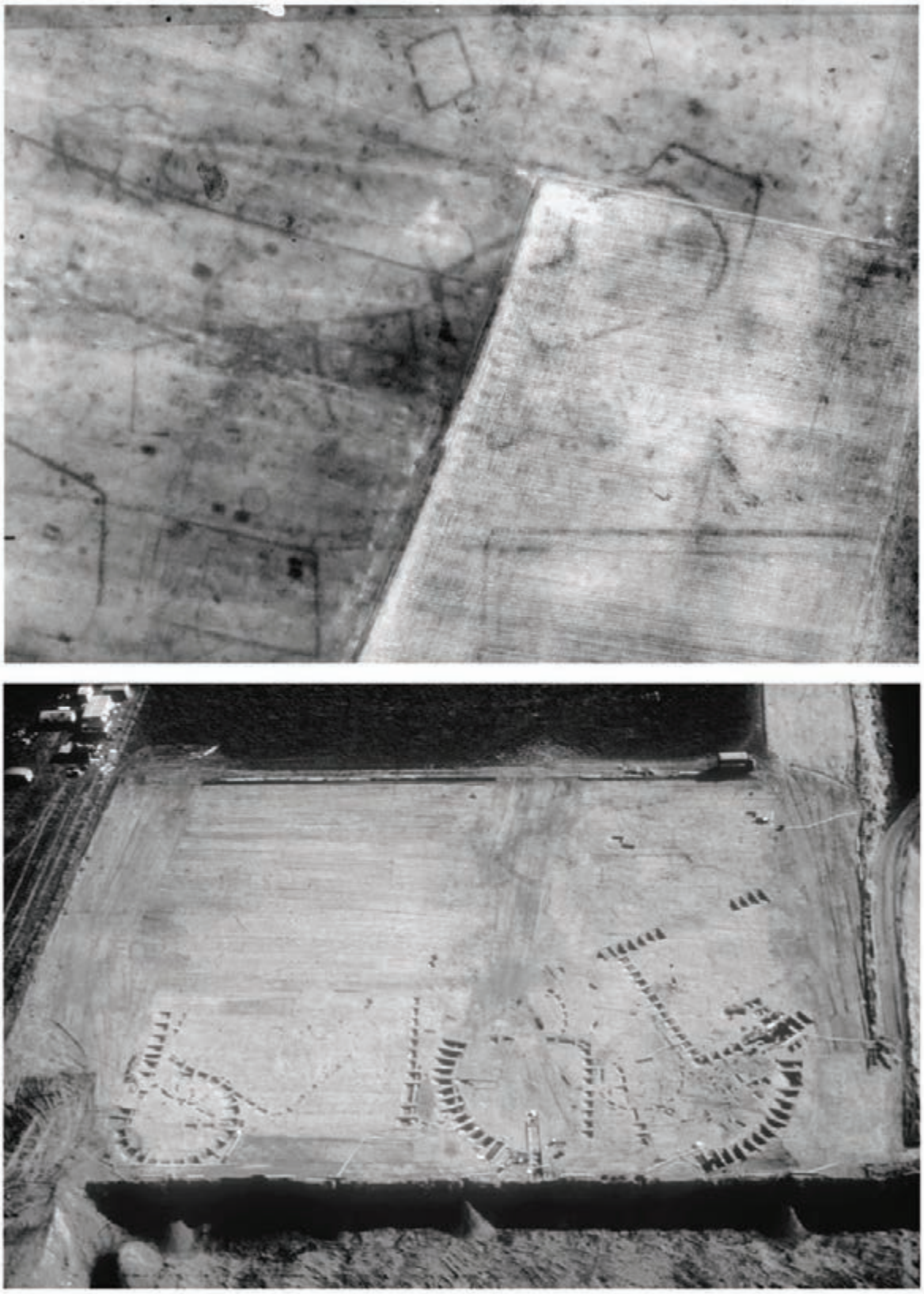


Figure 4.58. The Belgic Banjo: top, 1961 aerial photograph showing 'Banjo', with 1100 Enclosure above/west and, below/east, the Double Ditch Enclosure (CUCAP V-W 43); bottom, looking east with excavations in progress, with Roundhouse 79 on right-/north-side and, left/south, the Banjo's Enclosures 9 and 11.

Figure 4.59. Banjo-area base-plan.

Along with its accompanying illustrations (here rearranged as Fig. 4.61), it was apparently put together at short notice and meant to be given out to colleagues at a conference to 'test the waters' of their interpretation and to solicit for further parallels. Her summary is here reproduced in full (with 'rounded' metric measurements added) on the grounds that it remains a useful précis and provides significant interpretative insights. With its date described as 'Belgic' (i.e. first half of the first century AD), it interprets the enclosures as *sheep-folds* based essentially on the open-sided plan of a number of its components; this had earlier been stressed by Margaret Jones in a similar way:

> Belgic (or more rightly) belgicized settlement seems to indicate an increasing permanence, to judge from the frequent pits and sprawling complex of ditches, extending for some 170 × 30 metres, which it has taken four years to sort out into successive sheep folds. The ditches, up to nearly 2 metres deep, are seen as quarries for protective banks against biting north winds, and perhaps marauders and wolves also (Jones 1972a, 68).

In the summary that follows, this reasoning would have been further reinforced by the listed site parallels, as a number were interpreted as relating to pastoral transhumance, and – as outlined above – on this turned the characterisation of the terrace's Iron Age as relating to 'transhumant shepherding'.

What has been called the "Belgic" settlement at Mucking consists of intersecting enclosures and subenclosures. Sub- or open-sided 'enclosures' have been tentatively interpreted as sheepfolds i.e. the ditch being the quarry for a protecting bank.

Attached abstracts from the site plan [Fig. 4.61] illustrate an attempted sequence of the earthworks. (It is not expected that the pottery dating approx. 1st 1/2 1st C.AD can be sufficiently refined to elucidate the sequence: in any case it is not yet studied in detail). This sequence is based on vertical and horizontal stratigraphy, which is not always definite and minor features such as pits and gullies have yet to be examined.

Morphological comparisons in addition to Ashville, Farmoor, Fisherwick, Gun Hill, *etc*. would be welcome.

PHASE	SUB PHASE	DITCH WIDTH	DEPTH	ENT-RANCE/ OPEN SIDE FACING	BANK	REMARKS
I	A	10 ft [3m]	42in [1.05m]	N/NE	Internal	
	B	Silted up		–	?Levelled	Disuse. Intrusive pits, charcoal and occupation debris in ditch. Turf line developed in places
	C	4ft [1.20m]	15in [0.40m]	SE	Internal	Uncertain to what extent IA was refurbished but likely that IC was added to form less substantial rectilinear enclosure
II		10ft [3m]	32–42in [0.8–1.05m]	SE	External	Ditch recut once. Fence possible 2 round houses. Possibly contemporary.
III	A	Main ditch 5ft [1.50m]	18in [0.45m]			
		Subdivision 3ft [0.90m]	10in [0.25m]	E	Uncertain	Alignment with II suggests some continuity
	B	Main ditch 6ft [1.83m] Subdivision 2ft 9in [0.85m]	28in [0.7m] 7in [0.10m]	SE	External	IIIA probably still extant and IIIB represents annexe. Inhumations aligned with IIIB. Small penannular gullies may be contemporary.
IV	A	5ft 6in [1.70m]	30in [0.75m]	?NE	External	Recut several times. Completed by hedge or fence?
	B	2ft 3in [0.70m]	9in [0.25m]	W	–	Horizontal stratigraphy suggests contemporary with recut IVA
	C	2ft 8in [0.80m]	12in [0.3m]	NE	–	} Linked with IVA by horizontal stratigraphy only
	D	c 3ft 6in [1.05m]	20in [0.50m]	NW	–	

PHASE	SUB PHASE	DITCH WIDTH	DEPTH	ENT-RANCE/ OPEN SIDE FACING	BANK	REMARKS		
V	A	2ft [0.60m]	9in [0.25m]	SE	–	Later than IVD	}	Linked by morphology only
	B	2ft [0.60m]	9in [0.25m]	S/SW	–			
	C	?	?	S/SW	–			
	D	4ft [1.20m]	17in [0.45m]	NE	–	Later than IVA		
VI		5ft 6in [1.70m]	18in [0.45m]	SE	Internal	Gate post holes. At present phased later than IV – V because of morphology only		

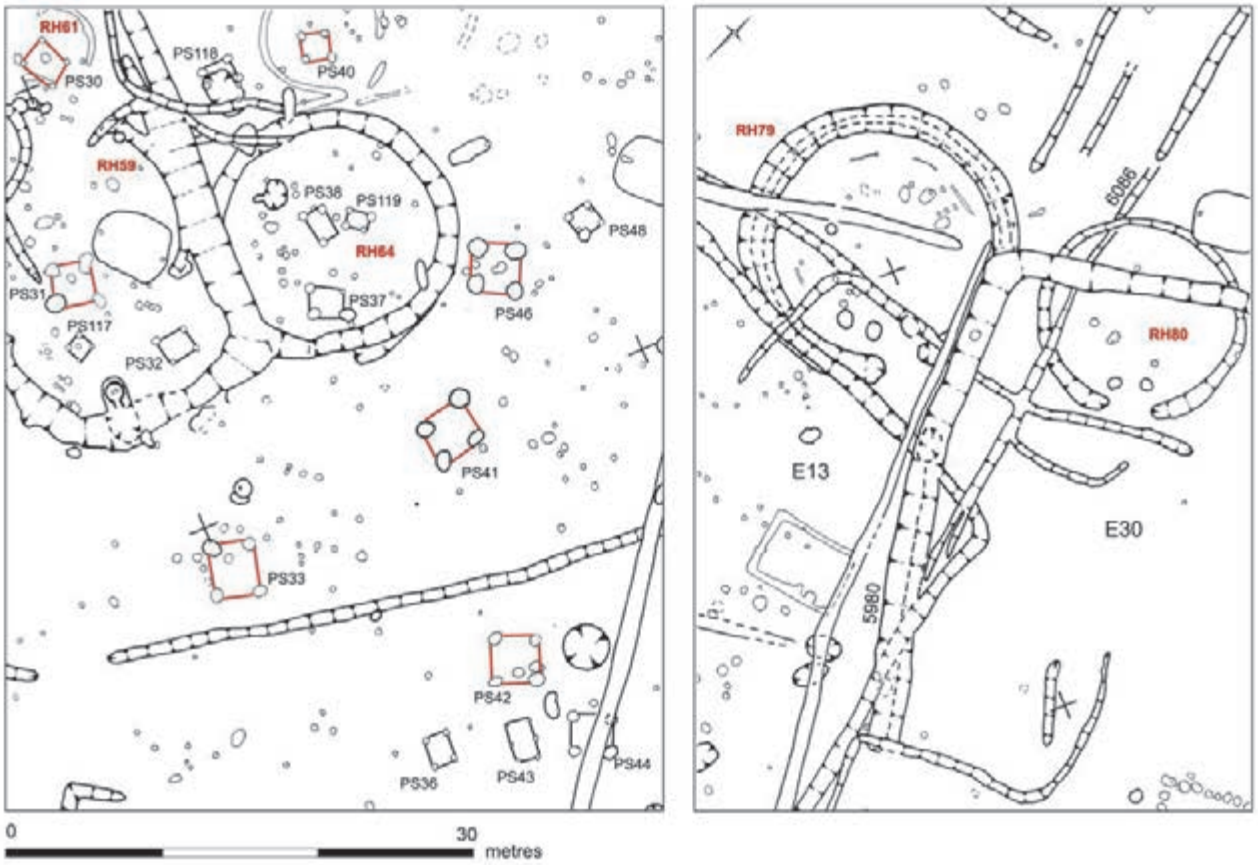


Figure 4.60. Selected details of the Banjo's base-plan (cf. Fig. 4.59): left, red-outline indicates the MPX-distinguished large-posthole 'posters', with CAU identifications shown in black-line; right, 'stratigraphic loops': notice how ditch [5980] is depicted as both cutting and being cut by Enclosure 13's boundary, with ditch [6086] similarly weaving across Roundhouse 80's gully (see also Fig. 4.65 for a similar relationship between ditch [5475] and RH67's eavesgully).

Several round houses occur in this area but cannot be precisely phased until morphological typologies and pottery typology and distribution are examined in detail.

Prior to our rehearsal of the development sequence of this complex – which has obviously itself been informed by this document – two points should be stressed. First, that the Banjo's concentric 'C'-plan enclosures (Nos. 11 & 12; Figs. 4.59, 4.62–3) remain without obvious parallels. Given its morphology and the open-sided plans of a number of its subsidiary

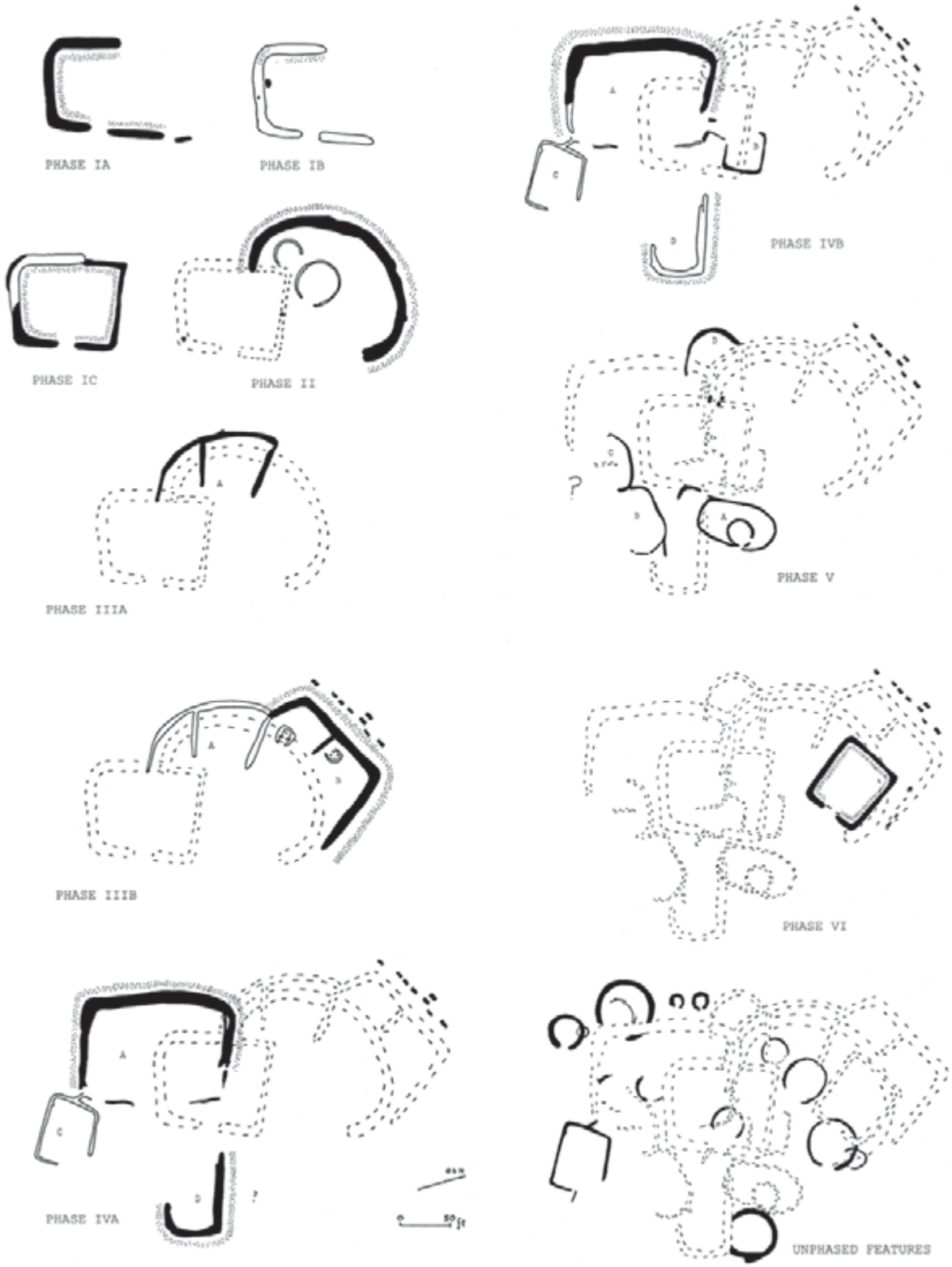


Figure 4.61. MPX-issued phasing sequence of the Banjo complex.

enclosures, the sheep-fold interpretative was, of its time, a reasonable argument. However, this also relates to the scale at which they addressed the period's land-use, essentially analysing its development in terms of discrete enclosure sequences. If they had managed to identify The Plaza's layout immediately to the south then the openness of the Banjo's compounds could have had a completely

different rationale, with the two complexes being considered in relationship to each other.

The second point relates to the area's Early Iron Age pre-enclosure usage. As mentioned, although some Early Iron Age MPX-attributed features occurred within the immediate area (Fig. 4.3), it is inexplicable why none of its pottery was drawn by MPX (see Brudenell, above and Fig. 4.6). A wall-trench roundhouse, Number 50, would certainly seem to have been of that date, with Roundhouses 48 and 155 being other candidates (see *Early Iron Age* above). As shown on Figure 4.59, within the vicinity eight post-circle structures have now also been tentatively identified. While some might well have been of Late Bronze Age date, in three instances these lay off-centre within the interiors of later gullied buildings and, therefore, their Early Iron Age dating is considered more likely (RHs 64, 66 & 69; also possibly, but less directly, for RHs 48/115 & 53/55).[38]

Based on the pottery distributions (Fig. 4.69), the area's Early Roman usage must have involved considerable reworking of, and pitting along, the Late Iron Age enclosure circuits. Although we have attempted to analyse the respective Iron Age/Roman distributions by feature-level/-depth, clearly there are still unresolved issues in the pottery attribution (with this being compounded by residuality; see, though, Chap 5's case-study, 'Late Iron Age Assemblages – 'Belgic' and Conquest Period Wares'). In an effort to untangle and attribute the complex's sequence we have essentially relied upon the apparent 'coherence' of its pottery distributions. The regularity and density of Late Iron Age pottery is, therefore, understood to reflect the Late Iron Age origins of Enclosures 10, 11 and 21; the lack thereof within the axes of Enclosure 12 is interpreted as indicating its Conquest-Period date.

As is evident on Figure 4.69, none of the area's roundhouses seem to be highlighted by the Late Iron Age pottery distributions. This is perhaps only to be expected of the minor gullied structures, but not the large ones. This would, however, correlate to Brudenell's dating of the robustly ditched roundhouse assemblages: Roundhouses 44, 45 and 51 all being 'earlier' Middle Iron Age, with Roundhouse 79 of 'later' Middle Iron Age attribution (see Chap. 5). Roundhouses 51 and 64 were definitely truncated by enclosure components (Enclosures 10 & 23 respectively). This makes the relationship of Roundhouse 69 to Enclosure 11 key: was it set later into the enclosure's eastern entrance (as with RH20 in the main ABC compound) or did it predate it? The multiple renderings of their relationship vary (see e.g. Fig. 5.37) and Leary did not assign that building to any of her phases. The south boundary along this enclosure's eastern side (its apparent extension of Enclosure 9's line) is so awkward as to suggest that something significant was missed there. In the light of this, and MPX's unambiguous Middle Iron Age attribution of Roundhouse 69 (see Fig. 4.19), it is interpreted as predating the enclosure but that it was still standing when its circuit was dug.

The only other point where our phasing model differed markedly from Leary's, is the relationship of Enclosures 12 and 10 (her Phase IIIA and IVA Enclosures; Fig. 4.61). Taking the plan evidence at face-value, she had the latter cutting Enclosure 12 in her Phase IVA. However, the arc of Enclosure 24 clearly seems clearly to have cut Enclosure 10's ditch and must therefore be broadly contemporary with the establishment of Enclosure 12. The latter would also seem 'late' on the grounds that it had very few definite Late Iron Age wares (in contrast to the ditches of Enclosures 10 & 11). If so, with the establishment of Enclosure 12, portions of the western side of Enclosure 10 must have then simply been re-cut.

Beyond this, building doorway orientation would also seem to offer potential insights. Where this can be established, the vast majority – including the robustly gullied Middle Iron Age examples – lay to the southeast,[39] albeit with two main variants. First, lying centrally within Enclosures 9 and 11 respectively, Roundhouses 63 and 67 were oriented south/southeast. Second, Roundhouses 65 and 66 both faced northeast. Roundhouse 65 would definitely seem to be of Early Roman date and, therefore, it is tempting to also assign Number 66 'late' in the sequence. Yet, this is impossible on the grounds that one of Enclosure 12's interior 'spoke-ditches' apparently truncated it. Accordingly, and as Leary indicates on her Phase II sketch-plan, Roundhouse 66 has here also been phased as contemporary with Roundhouse 67 within Enclosure 11 (with Roundhouse 66 perhaps being in the same way as RHs 9 and 16 in the ABC's Enclosure 4); an element of doubt, though, must linger concerning their relationship.

Having established these datums, and with the majority of the area's roundhouses then being of pre-enclosure attribution, a simplified four-stage development model can be postulated (Figs. 4.62–3). This though includes various sub-phases and, akin to Leary's, a much more extended sequence could certainly be proposed. When, however, faced with so much complexity, broad-brush simplicity is here held to be a virtue in the name of intelligibility. Indeed, the many component parts and the potential permutations of their interrelationships are such that to attempt to phase the complex's sequence on this basis is essentially impossible.[40] Nevertheless, having gauged the challenges posed by the task ahead, it should be emphasised that what phasing is possible must be based more on 'enclosure-logic' principles than stratigraphic detail.

Figure 4.62. Banjo-area phasing, Stages I and II.

Stage 1 (Fig. 4.62) – This was marked by the establishment of Enclosure 9. Its relatively heavily-ditched sub-square layout was comparable to that of the main ABC compound. Accordingly, there is no reason not to assign it to the Middle Iron Age. While it is unlikely that it was contemporary with the area's earlier Middle Iron Age buildings (RHs 44, 45 & 51), the enclosure's usage could have overlapped with that of Roundhouses 64 and 69 (and logically the latter would have to still have been standing when Enclosure 11's circuit was dug in Stage II). If this was the case, then this would cast some doubt on whether Roundhouse 63 would have then been a primary feature within the enclosure or if it was only subsequently added, given its differing doorway orientation (south/southeast *vs*. southeast).

Nor can there be certainty whether the small southern 'C'-plan compound, Enclosure 7 should be assigned to this stage or the next, there being no artefactual basis available by which to date it.

Stage 2 (Fig. 4.62) – This saw the addition of Enclosure 11's 'C' to the northern aspect of Enclosure 9. This must have involved the backfilling of part of the latter's circuit, with the remainder then being re-cut and its eastern side extended northward towards Enclosure 11's eastern terminal. (Note that this postulated reworking of Enclosure 9 to join it with Enclosure 11 differs from Leary's phasing.) It was this incorporation of the two enclosures that produced the quasi-keyhole arrangement visible on the aerial photographs (i.e. 'banjo-like'). At this time Roundhouse 63 would have certainly stood centrally within Enclosure 9's 'cell', with a larger building, Roundhouse 67, similarly situated within Enclosure 11. Given their similarity, it is in fact possible that Roundhouse 63 had a paired/ancillary relationship with Roundhouse 67, though the distance between them is, perhaps, too great to argue this with certainty (see above concerning the essentially 'arbitrary' assignation of RH66 to this stage).

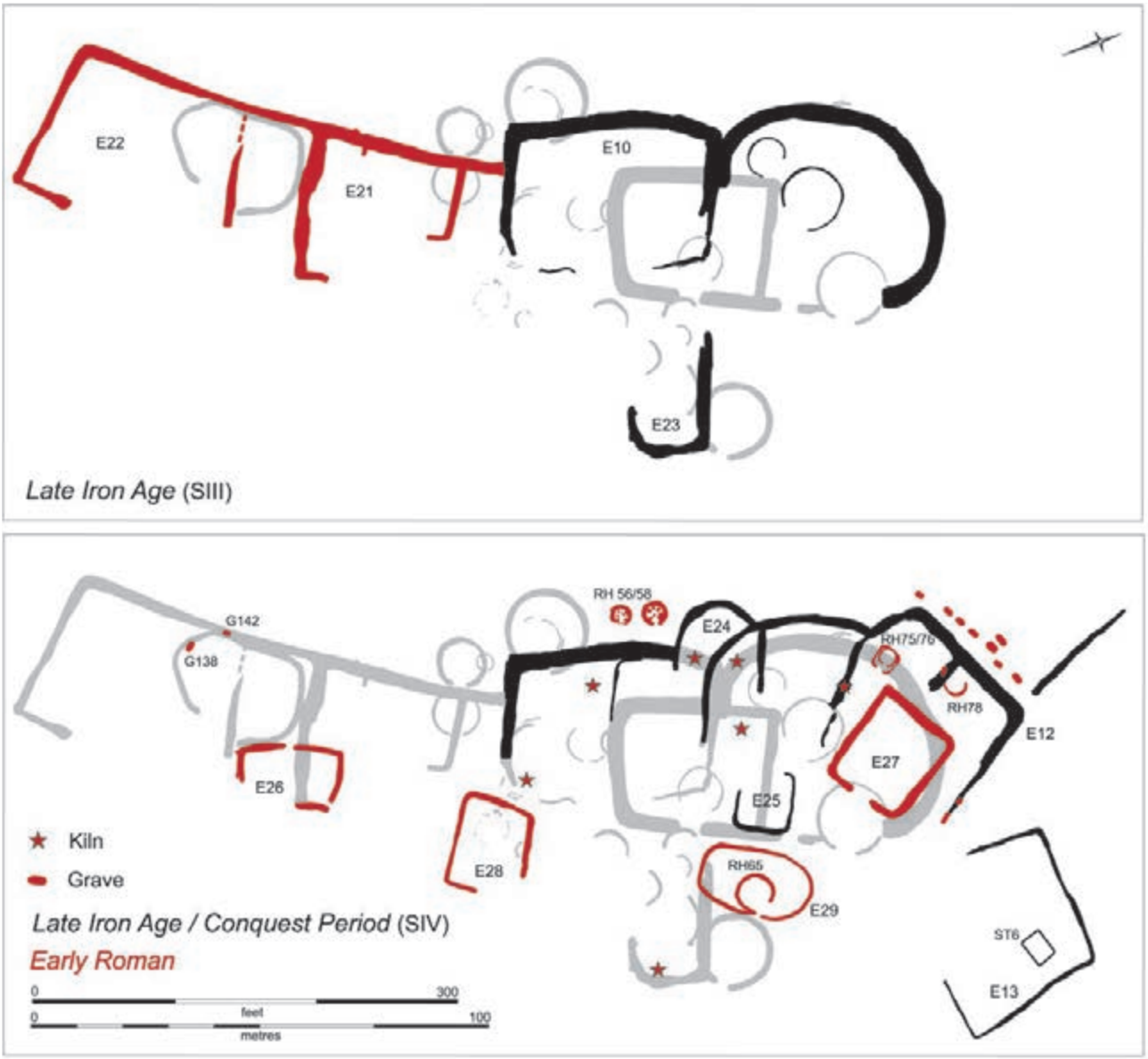


Figure 4.63. Banjo-area phasing, Stages III and IV.

Stage 3 (Fig. 4.63) – It was at this point that Enclosure 10's sub-rectangle was added to, and evidently truncated, the southern terminal of Enclosure 11's 'C'. It also bisected Roundhouse 51's eavesgully (though its building had probably long been dismantled) and it is probable that both Enclosure 9 and, with it, Roundhouse 63 went into disuse at this point. Doubt concerning the latter relates to the character of the ditch circuit around the western half of Enclosure 10. While its western part was robustly ditched, the boundary along its eastern side (plus the eastern halves of both its southern and northern axes) was much more irregular and minor, which could indicate a later extension. If so, it is just conceivable that both Enclosure 9 and its central building then still functioned in some manner. In order not complicate matters, we will presume that this was not the case and that Enclosure 10 saw the end of Enclosure 9's use-life.

Truncating the circuits of both Roundhouses 57 and 64, it was probably at this time that Enclosure 23's 'tailed' ditch-length – a 'fishhook-like' arrangement – was dug along the complex's eastern margins. It is assigned to this stage on the grounds that its main arm continued, if projected, the line of Enclosure 10's northern side. While the quasi-curvilinear layout of Enclosure 23's southeastern portion suggests that it may have encircled a roundhouse, there was no evidence of such within its interior.

It is essentially for the sake of convenience that a series of secondary developments have also been assigned to this stage (as opposed to being allotted to one of their own). This was felt reasonable as (based on the area's finds distributions; see Fig. 4.69) all of these are the last enclosures to be added where we can be relatively confident of their Late Iron Age origins (*vs*. Early Roman). This involved the addition of two conjoining rectangular paddocks to the southern side of Enclosure 10 (Numbers 21 & 22). Both of these were open to the east and had single, internal

sub-dividing boundaries (east–west). The southernmost – Enclosure 22 – involved the truncation of Enclosure 7's minor 'C' setting, though by then it had probably long been abandoned.

Stage 4 (Fig. 4.63) – As suggested by the area's finds distributions (see Fig. 4.69), this stage marks the complex's Late(st) Iron Age/Conquest Period development. Its main component was Enclosure 12's boundary, which, in part, concentrically followed Enclosure 11's perimeter; it is presumed that this encirclement did not relate to the maintenance of the latter's earlier 'circle', given the intercutting of ditches, and the insertion of a building and a kiln. The concentric relationship between Enclosure 11 and 12 must have had to do with the location of an upcast bank encircling the former's perimeter. Instead, Enclosure 12's circular perimeter only continued around 11's southwestern arc, 'boxing out' along its northern side. There, its arrangement included a short internal dividing ditch whose southeastern terminal probably stopped at the point where Enclosure 11's remnant bank locally survived.

At the junction of Enclosure 12's circular and 'boxed' portions another sub-dividing boundary extended for some 16m into its interior (and across Enclosure 11's boundary); another matching ditch occurred to the south, with its western end lying close to where a half-circular sub-enclosure (No. 24) joined with Enclosure 12's perimeter. As discussed above, while on plans the latter's eastern end definitely seemed to truncate Enclosure 10's eastern circuit, at that point Enclosure 10 seemed to cut Enclosure 12; this stratigraphic 'loop' can only have been the result of a later re-cutting of Enclosure 10 along that side.

Scrutiny of Figure 4.59 indicates that another small, eastward-opening sub-square compound may also have been re-cut into the northwestern corner of Enclosure 10. It would, thereby, have created a 'boxed' sub-division akin to Enclosure 12's 'spokes'. Although the dating evidence is far from definite, it is likely that at this time a small rectangular pen-like enclosure – Number 25 – was also inserted into Enclosure 12's eastern margin (and across the earlier infilled line of Enclosure 9).

Separately presented below (including an extensive discussion of its dating), a discrete sub-square compound lying just northwest of the Banjo complex – Enclosure 13 – is held to be contemporary, essentially because its 'radial' orientation was complementary to that of Enclosure 12.

A series of more minor enclosures were dotted along the complex's eastern side, which all seem to have been of Early Roman date. Although quantities of Iron Age material were associated with Enclosure 26 (cutting the eastern end of the ditch axis separating Enclosures 21 & 22's paddocks), so apparently were substantial amounts of later first- to early second-century AD pottery. North of this point, almost no definite Iron Age pottery occurred within Enclosure 28's ditches; instead, a large amount of Roman pottery was recovered, which dated even later: later first to late second centuries AD.

Enclosure 27 is also here assigned to Early Roman times, based essentially on its similarities of plan with Enclosure 28, and on its sympathetic location with the interior of Enclosure 12's 'boxed'-portion axes. As is apparent on its *Atlas* plan (see Fig. 5.37), this evidently had a rather elaborate timber-post entranceway, and traces of what was probably some manner of trench-set fence-line occurred just inside its ditch circuit.

Enclosure 27 was attributed as Roman on the MPX-phase plan (see Fig. 4.2), as was Enclosure 29 (this having later first–early second-century pottery). Cutting across the long axis of Enclosure 23, the latter was an unusually ovoid, minor ditch-setting. It had a rather small, east-facing entrance gap, into which the entranceway of its interior roundhouse, Number 65, was directly linked (Fig. 1.14). As mentioned, the latter shared a distinct building-entranceway arrangement (plus orientation) with Roundhouse 66, set along the western interior side of Enclosures 11/12. While there are grounds to think that these two structures may have been contemporary, this does not seem possible as one of Enclosure 12's 'spoke-boundaries' apparently cut through that building (here, otherwise, RH66 is assigned to Stage II).

Although their dating evidence is not without ambiguity, three four-posters surrounded by penannular ditches appear to relate to this stage (RHs 56, 58 & 78; Fig. 4.64). Roundhouse 75/76 is most convincing of a 'late'-sequence assignation, on the grounds that it was constructed across Enclosure 11's infilled circuit, was a small gully-defined rectangle, and was apparently re-cut by a small penannular gully within its interior (Fig. 4.64); given its usual arrangement, it is conceivable that this is actually some manner of small shrine.[41] (Mention should be made that the encircled four-posters all occurred in areas where evidently earlier, un-ditched posters lay [see Figs. 4.59 & 4.65], and which might well indicate a continuity of Iron Age/Early Roman grain storage-function.)

Burials

A series of burials were associated with Enclosure 12, with nine inhumations considered to be a distinct cemetery group (Cemetery III; Fig. 4.65). Of these, eight extended in a parallel arrangement exterior to its straight northwestern boundary, with another dug into its interior ditch. As indicated in the archive files, Margaret thought that these were probably of prehistoric/Late Iron Age date, due both to their apparent relationship with the 'Belgic' ditch and that in four instances the bodies lay flexed.

This attribution was furthered by the Butt beaker sherds found in Grave 660, but this was along with some 30 other sherds from its fills; these could well have been residual as the grave was dug into the enclosure's dividing ditch. Grave 652 did, though, include a Late Iron Age or later wheel-thrown vessel.

Although Margaret Jones did not asociate them with this group, three further graves occurred along the enclosure's northeastern boundary. Two lay in the ditch itself (both unaccompanied), and another was located just inside its line. The latter, Grave 782, consisted of the base of a 'grave-like' cut surviving beneath a post-Medieval ditch. While no body was identified, parts of three vessels were present (Fig. 4.65). One was a near-complete, small cordoned, short-necked flask ('?Cam 234'; see Chap. 4, 'Late Iron Age Assemblages – Belgic and Conquest Period Wares' concerning the site's form series designations), whose base appears to have been 'hole-killed'. There were also sherds from a small cordoned bowl ('?Native Beaker'), as well as

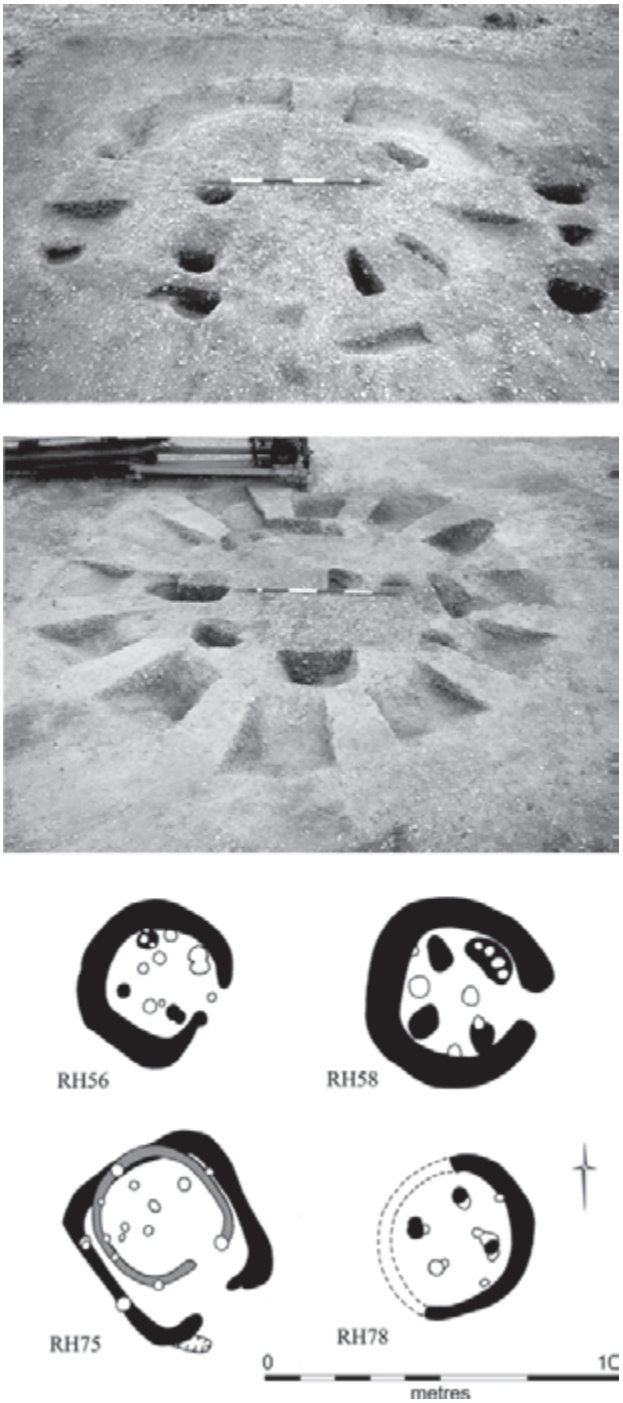


Figure 4.64. Banjo complex, Early Roman structures: photographs of Roundhouse 56 (top) and, middle, No. 58; bottom, plans (RHs 56, 58, 75 & 78).

a large storage jar (said to have been overlain by charcoal). Although these may well have been Late Iron Age, given the state of the pottery and the barbell-shape of the cut, the evidence is inconclusive as to whether this was actually a grave; instead, it may have been a 'special' pottery deposit.

To the northwest, a cremation (No. 587) was recovered from the enclosure ditch fills close to the corner; this lacked any dating evidence. Similarly, found within the fills of Enclosure 24 and Roundhouse 58's gully were two cremations, Numbers 781 and 536 respectively; both are considered to be of 'late' attribution.

In the southern end of the complex an inhumation burial, Grave 138 (762N × 138E, Fig. 4.63), containing the remains of both an adult and child, had been dug into the ditch-line of Enclosure 7; the adult burial was apparently flexed. Nearby was another grave (No. 142; 790N × 130E), which appeared to truncate Enclosure 22's boundary. Although an iron knob was present, the body only appeared as an ill-defined silhouette and no further identification is possible.

Coffin stains were detected in four graves, and iron nails were recovered from one of these. Based on this, and what little dating evidence is available (see Thompson, Chap. 5 below), though the origin of this cemetery-cluster may well have been Late Iron Age its seems likely that the majority of its burials are of Conquest/Early Roman attribution (hence why the cemetery has been allocated a dual prehistoric and Romano-British assignation and is published in full in the Roman volume).

Enclosure 13

Located just to the northeast of the Banjo's compounds, Enclosure 13 can also be considered part of the same complex (Fig. 4.63). Extending over some 1150sqm as defined by a ditch-line of relatively minor proportions (its circuit seemingly incomplete or not fully detected in the southwestern third), its main interior feature was the rectangular trench-built 'Belgic' house (6.2 × 4.4m; Structure 6; Figs. 4.22 & 4.66). This comprised a foundation trench, *c.* 0.4m wide and 0.23m deep. Post-pipes were apparently recorded along portions of it, with some up to 0.5m deep in total and penetrating below the trench's base (Fig. 4.67). Aside from shell-tempered ware sherds (see below), fired clay was the main finds category recovered.

Occurring within the enclosure's southern half were some 13 pits, varying from 1–3m long and 0.75–2.1m across (Fig. 4.66). They were 0.18–0.67m deep, and variously had steep, concave or stepped sides with flat bases. An examination of the notebooks shows that all contained pottery (with accompanying sketches, but no quantification), including grog-, flint- and shell-tempered wares. Several also had decorated wares, and what the excavators reported as 'black burnished, wheel thrown' sherds; numerous vessels are hinted at, some evidently Late Iron Age forms, as well as later, Romano-British types (Figs. 4.67–8). Triangular loomweight fragments were found in at least four of the features ([5984/5986], [5962] & [4224], with several from [5970]; see Fig. 5.16). At least three contained 'Belgic Bricks', one piece being described as 'dumb-bell'-shaped, and they were considered to be probable firebars or kiln furniture. In addition, copper alloy and iron slag was found in three pits (two inter-cutting and one nearby: [4224], [4226] & [6363]), with vitrified pottery fragments recovered from another ([8703]); nail and iron fragments were also recorded ([5948], [6363], [8703] & [5405]), along with a knife fragment from pit [5962]. A small quantity of animal bone (including teeth) is mentioned, and one feature is described as a 'rubbish' pit ([5984] & [5986] intercutting).

Typically containing three to four fills, these consisted of brown, gravelly loam with clay and charcoal patches/lenses, although no *in situ* burning was recorded in the

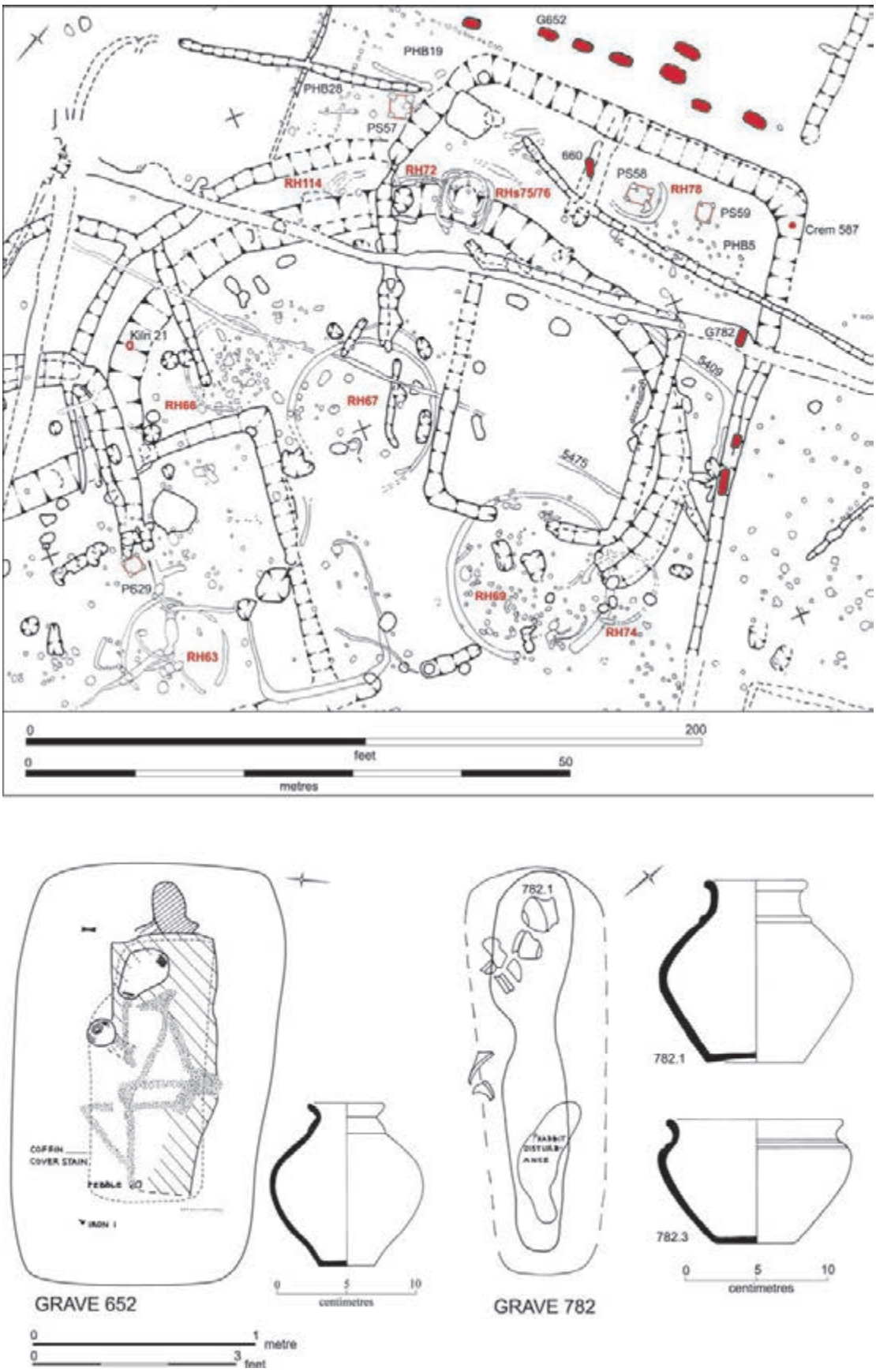


Figure 4.65. The Banjo's Circle: above, base-plan of the area of Enclosures 11 and 12, with graves highlighted in red; below, Graves 652 and 782, with associated pottery.

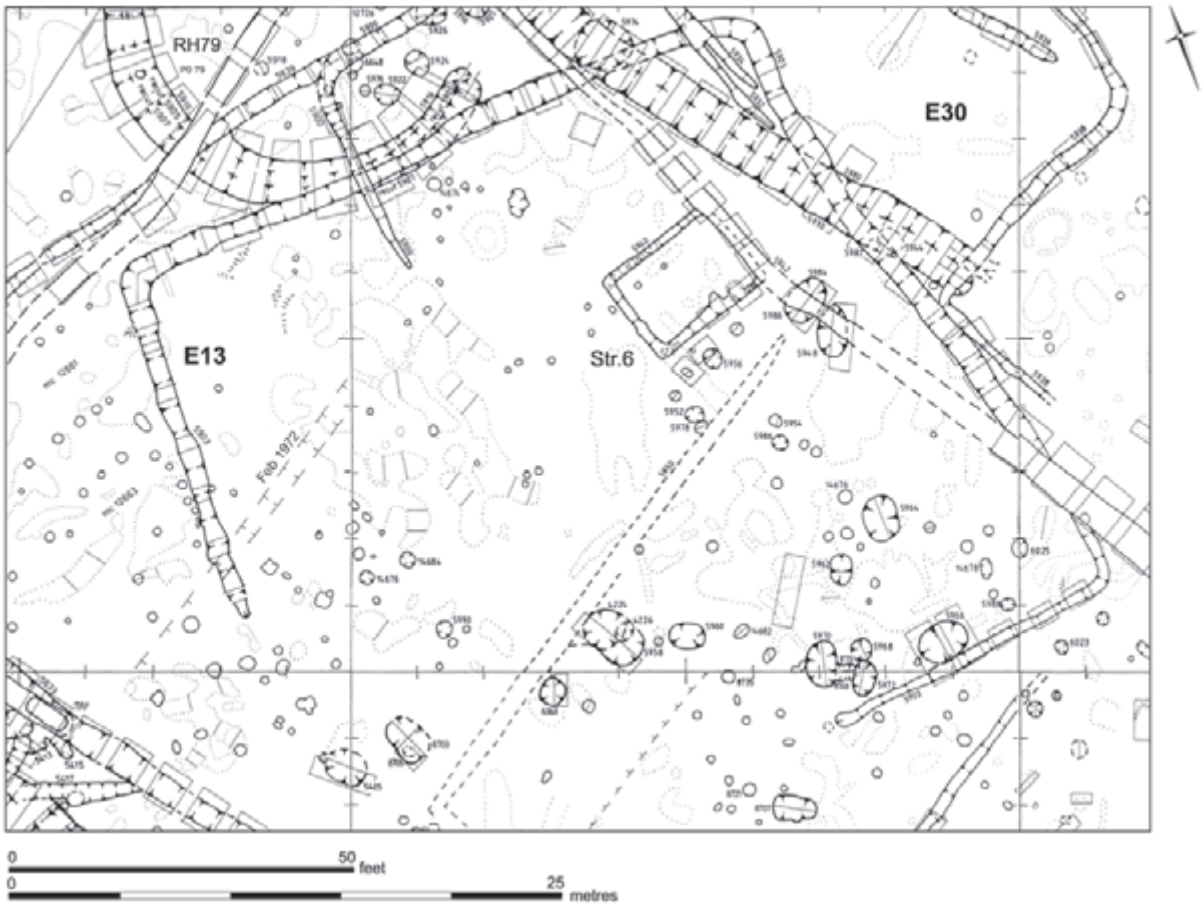


Figure 4.66. Enclosure 13 and Structure 6 base-plan.

features themselves (though, burnt sherds were recovered from pit [5968]). This absence of *in situ* scorching, the presence of charcoal patches, plus the shallow nature of the pits and the large quantity of pottery, potential kiln furniture and metalwork debris, suggests that these may have been rubbish pits.

Despite its ditches being smaller, the enclosure itself seems rather comparable to Enclosure 12's 'boxed' portion. Indeed, in terms of the large-scale landscape dynamics of the terraces, the two would seem to have had an almost 'radial' relationship to each other (Figs. 4.35 & 4.63).

As is apparent in the area's finds plots, the enclosure clearly shares the same dating evidence dilemmas as the 'Banjo'. On the one hand, its axes are picked out by Roman pottery, with *Terra Rubra* (imitation) and a sherd of first-century AD Samian in addition (Fig. 4.85). On the other hand, in reference to Figure 4.4 and as alluded to above, it also had considerable quantities of Late Iron Age wares and three iron brooches of that date (although no Iron Age coins were recovered from its immediate area). While one brooch from its ditch was just an unidentifiable spring fragment (see Haselgrove, Chap. 5, No. 52), two simple wire-type brooches (Nos. 8 & 9) were recovered from that boundary and a pit within the enclosure's interior. These date to the second and third quarters of the first century BC; in other words, unexpectedly early in the light of the enclosure's pottery.

Given this, and the fact that the enclosure included both 'open' elements (its ditch) and closed features (the pits and house trench), it was decided to employ it as test-case for the main designated Late pre-Roman Iron Age (BLB/BLC) and Conquest Period/Early Roman (BLA) pottery fabric-types. The results are shown in Table 4.4 and they are remarkable. Two instances aside (pits [5405] & [5960]), they all attest to a significant mixing of these wares. Of course, variability is evident, ranging respectively from 64.5/35.5% to 21.8/78.2% (ignoring [6363]'s values on the grounds that its assemblage is simply too small to be meaningful). Nevertheless, the average of the pits' percentages – 51% (BLB/BLC) *vs*. 48.4% (BLA; plus 0.6% *Terra Rubra*) – almost exactly matches that of its 'open' ditch: 51.5 and 48.2%.

While this rather uniform 'admixture' might be explained by midden redeposition, this would seem over-convenient and most unlikely. What it does suggest is that these periods cannot be sufficiently distinguished by ware alone. In the case of the Banjo's pottery, the mutual occurrence of these Late Iron Age and Early Roman wares had been explained away by citing Early Roman reuse and re-cutting of its main ditches, but Figure 4.69 shows that this is too uniform and widespread a mix for that to be a valid interpretation. Indeed, our unease with these distributions prompted the distributional case-study of the Banjo area that features below (see Chap. 5, *'Style in Landscape' …*),

Table 4.4. Enclosure 13, pottery fabric frequencies (percentage greater than 100% due to rounding; note that the fabric entries also includes 'possible' identifications of the respective categories).*

Feature	Terra Rubra*	BLB/BLC	BLA	Total
5405		4 (100%)		4
5948		8 (25.8%)	23 (74.2%)	31
5960		22 (100%)		22
5962	1 (1.2%)	24 (60%)	16 (40%)	41
5964	4 (1.8%)	91 (60.7%)	59 (39.3%)	154
5966	1 (0.6%)	96 (65.8%)	50 (34.2%)	147
5970		122 (61.9%)	75 (38.1%)	197
5972		69 (64.5%)	38 (35.5%)	107
6363		1 (14.3%)	6 (85.7%)	7
8703		20 (23%)	66 (76.7%)	86
4224/4226/5958		37 (21.8%)	133 (78.2%)	170
5894/5986		45 (50.6%)	44 (49.4%)	89
Pits Total	6 (0.6%)	539 (51%)	512 (48.4%)	1057
Enclosure Ditch		407 (51.8%)	379 (48.2%)	786
Belgic Hut		2 (40%)	3 (60%)	5
TOTAL*	6 (0.3%)	948 (51.3%)	894 (48.4%)	1848

where distributions of wares are interrogated by feature-depth and both their forms *and* fabrics.

As indicated in Leary's table-listing above, the Banjo complex's enclosure ditches were not particularly substantial, in contrast to, for example, RBI and the North Enclosure. At *c.* 3.0m wide and up to 1.05m deep, only those associated with the circuits of Enclosures 9 and 11 were robust boundaries, with remainder being less than 2.0m across and 0.5m deep (aside from Enclosure 12's main 'boxed' circuit which was 0.7m deep; see Fig. 5.32).

It is difficult to account for the spoke-like sub-division of Enclosure 12's interior, though the sorting of stock could provide an explanation. Equally, Enclosure 29's ovoid layout might suggest that it functioned as some manner of sheepfold. Harking back to the Joneses' transhumant shepherd arguments, the occurrence of the complex's 'C'-plan enclosures is also noteworthy, with Enclosure 7 almost appearing a much smaller version of Enclosure 11. In the case of the latter, the recovered finds would seem to tell another story. While metalwork finds were relatively sparse aside from brooches and coins, the frequency of mould and tuyère pieces within the complex was sufficiently high to indicate that copper alloy production was amongst its activities (see Fig. 5.11). It is surely relevant that the small finds notebook depicts a bronze ingot (with adhering fibre impressions: 'prob. grass'; No. 202) that came from the area of Enclosures 7/22, apparently associated with 'Belgic pottery' (Fig. 4.70).[42] Equally, the quantities of slag and hearth-slag pieces would attest to ironworking (Fig. 5.15), with

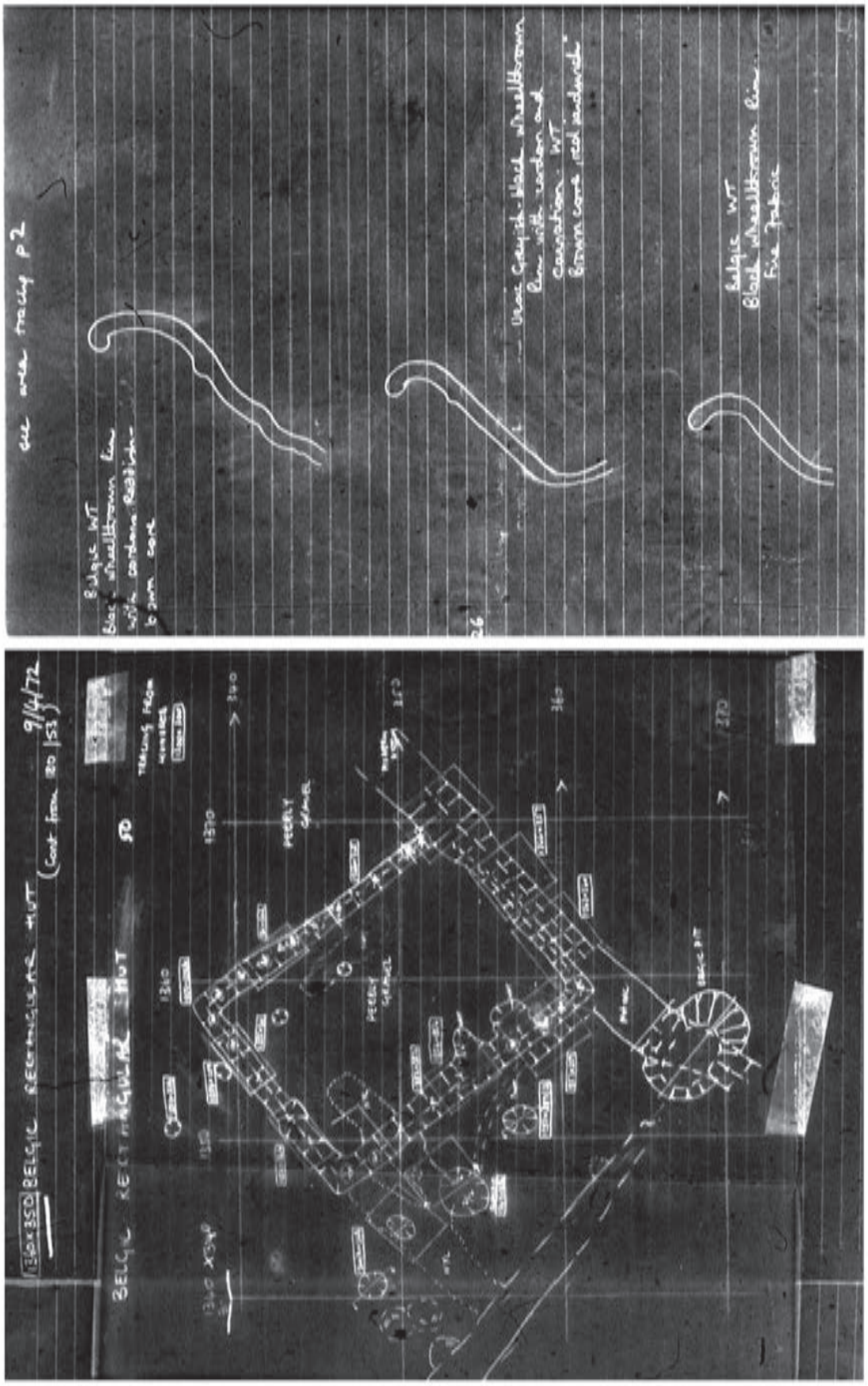


Figure 4.67. The 'Belgic Hut' (Structure 6; see photograph Fig. 4.22), notebook-entry sketch plan and pottery drawings (Notebook 199).

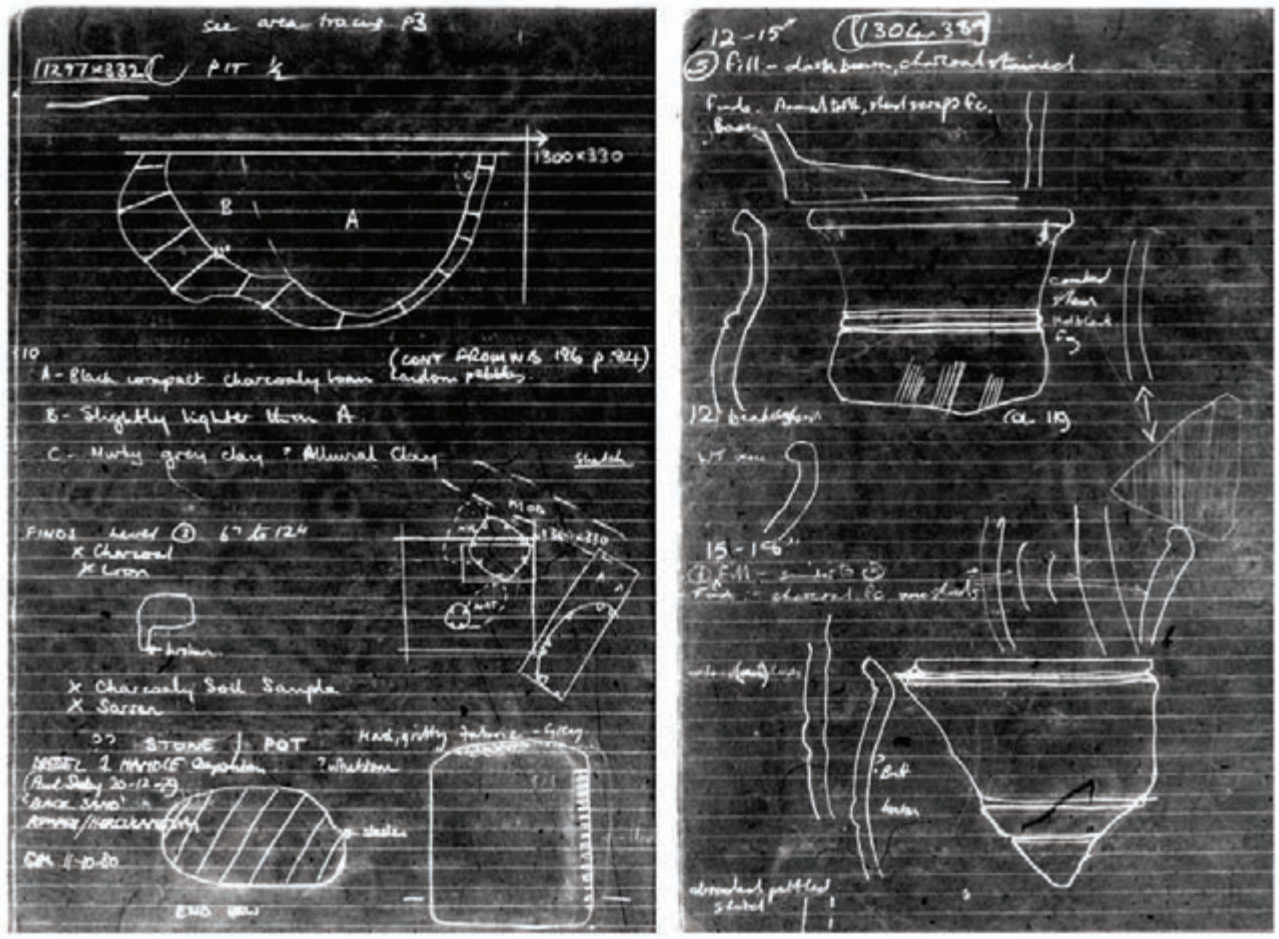


Figure 4.68. Enclosure 13, notebook-entries: right, pottery drawings from pit [5966] (Notebook 197); left, pottery from pit [6363]; notice the sketch at the bottom of the page which queries whether a quasi-cylindrical find was stone or pot. This was subsequently confirmed to be a Dressel 1 amphora handle by Paul Sealey (20/12/79; unfortunately, this identification does not seem to have ever been entered into the site's digital pottery catalogue). Paul recalls viewing the piece:

"I remember it well. I saw it at Thurrock at Mucking post-ex. Margaret Jones was very kind to me, and could not have been more helpful. When I saw the incised lines along one side I drew her attention to the similar cuts on one from the Welwyn Garden Grave (Stead 1967, pl. 2b). Margaret turned to one of her staff – Ruth Birss, I think – and said 'Ruth, please go and fetch Volume 101 of Archaeologia'. And she did. It was like being waited on in a restaurant".

concentrations within Enclosure 21 and 11's main circular arc/boundary. These same areas also had concentrated fuel ash-slag distributions and the latter probably therefore also related to ironworking; they do not, for example, show any close correspondence to the immediate area's kiln locations. While three tournettes came from the complex's features (see Fig. 5.16), the area saw the site's highest density of Belgic Bricks and briquettes (118; 61% site total). Displaying a marked concentration with the area of Enclosures 9 and 10 (Fig. 4.69), it is probable that these did relate to pottery production.

Although only two spindlewhorls were apparently recovered from the area, the dense spread of triangular loomweights – particularly in Enclosures 9–11 and 21 (see Fig. 5.16) – indicate that textile manufacture was widely practised.

While not particularly dense in their distribution, in total 14 rotary quern pieces were recovered from the area (see Fig. 3.2), surely denoting food processing.

The complex's pottery distributions are shown on Figure 4.69: there was a dispersed scatter of La Tène-decorated sherds throughout (11 in total) and only 17 sherds of first-century AD Samian (11.3% of the site total; there were much higher densities within the Double Ditch Enclosure). Along with the RBI western sub-enclosure (No. 5), the complex saw the site's highest numbers of *Terra Nigra* and *Terra Rubra* (four and 191 sherds respectively, plus 76 'possibles' of the latter; together 65.7% of site-wide total). This is in direct contrast with the Double Ditch Enclosure's low values of these wares. Within the complex these occurred densely in all but the northern and southernmost enclosures (Nos. 12 & 22). While

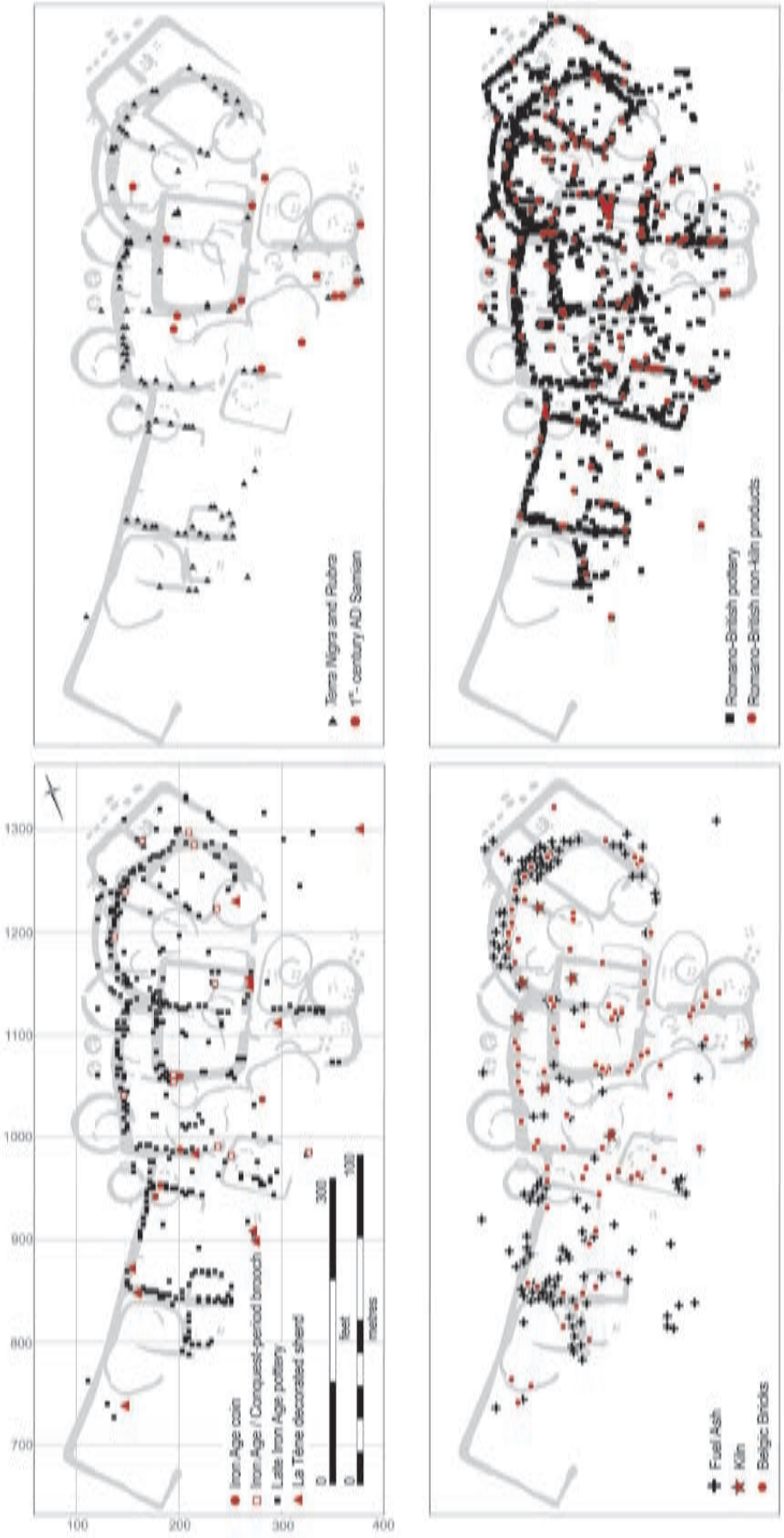


Figure 4.69. Banjo complex, artefact distributions.

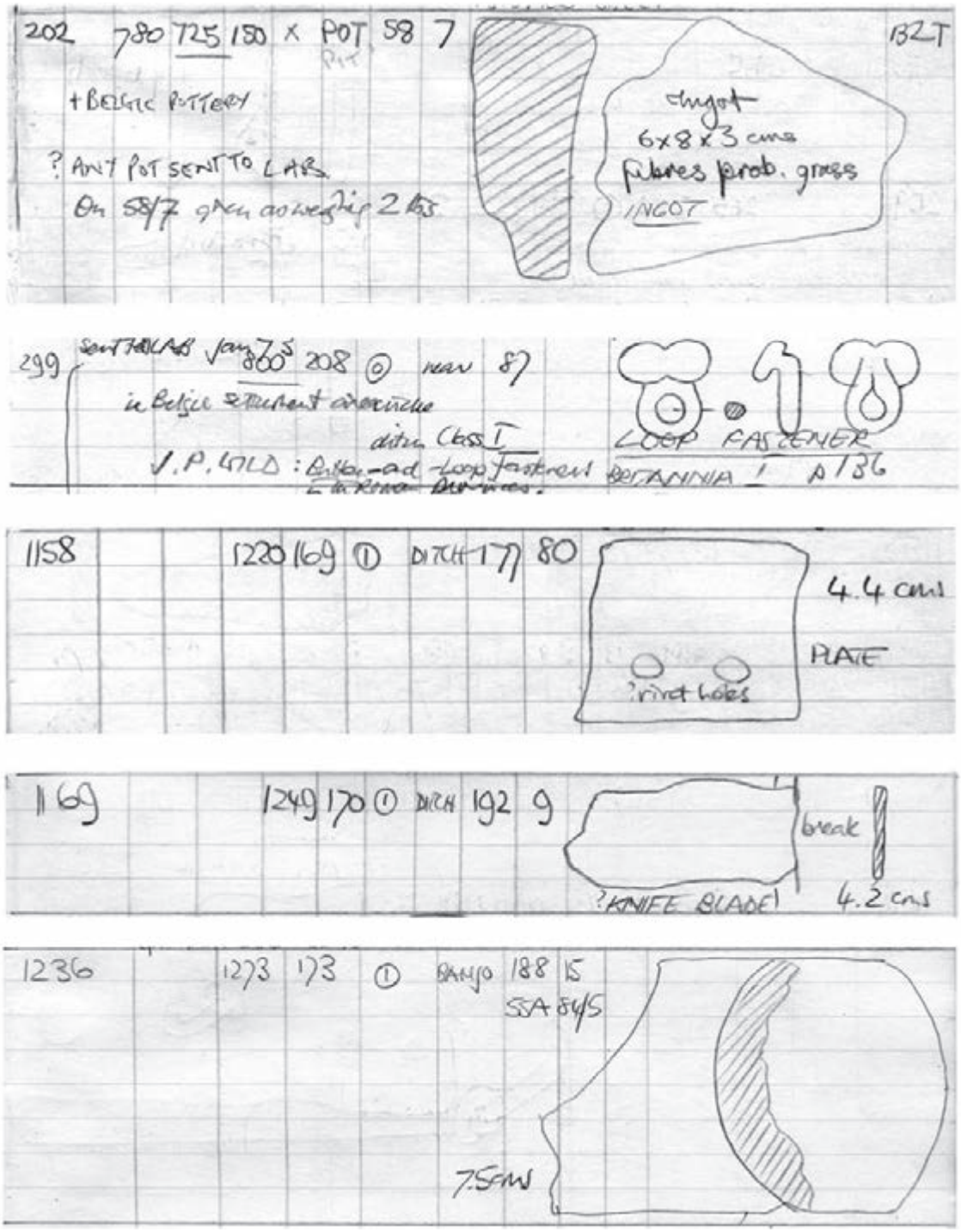


Figure 4.70. Belgic Banjo, notebook small finds illustrations: top, bronze ingot (No. 202; AML 780); middle, No. 299) bronze loop fastener; below, selected iron objects.

the paucity within the latter is likely to be the result of its patchy excavation, that so few sherds occurred within Enclosure 12's perimeter – in contrast to the inner circle's high levels (E11) – could well indicate its Conquest Period or even later construction. A directly comparable distributional pattern is also found in the plot of the *c.* 765 Late Iron Age wares (definite only; 53.1% of the site total). It is relevant to note that a Claudian coin (AD 43–60) was recovered from the upper fills of Enclosure 11's circuit (see Fig. 4.85).

Finally, seven later/Late Iron Age brooches were recovered from the area of the complex's 'core' enclosures (9–11), with another three of somewhat later, mid to late first-century AD date (plus three penannulars and an undatable spring fragment; see Figs. 4.4 & 4.69). In addition, five Iron Age coins were

found, concentrated within the area of Enclosure 10 (see Haselgrove and *'Type' Metalwork* in Chap. 5 below concerning the enclosures' coins and brooches). The evidence would suggest that, far being the sometime abode of 'Belgic shepherds', this complex must essentially have been a relatively high status Late Iron Age residence having its origins in the Middle Iron Age; one that also hosted considerable industrial activity, certainly metalworking and possibly pottery production.[43] Although this complex evidently saw direct continuity of Late Iron Age/Early Roman usage, the arguably elite status of the former did not continue into post-Conquest times. However, the occurrence of three, Early Roman-phase penannular-ditched four-poster granaries (set within RHs 56, 58 & 78) could tell of continued mass-scale grain storage in relationship to the earlier Granary Row array. Another question is the re-cutting in Stage IV of Roundhouse 75's square by Roundhouse 76's circle and whether it relates to a small shrine. Admittedly, there seems no obvious depositional evidence to confirm this, but based on its layout and precedent (e.g. Downes 1997) this would be a reasonable interpretation.

Similarly, what of the status of Structure 6's putative 'Belgic House'? While it would seem to be of Late Iron Age date, it can be questioned whether it was actually intended for domestic occupation *per se*. At 4.4 × 6.2m and defined by deep trenches, it would be very small for such a purpose and would be unlike any of the site's other Iron Age/Roman buildings. Perhaps it was also a small shrine or possibly even a square barrow (in the case of the latter, the later discussion concerning the character of Enclosure 13 will be relevant). That said, the quantity of material recovered from Structure 6 and its enclosure suggests domestic usage; the ambiguity is essentially due to just how little the region's Late Iron Age/Conquest Period settlement is understood. The issues of both this enclosure complex and the site's 'Late' buildings will be further addressed in Chapter Five's *Discussion*.

Recollections (II) – *Post-Excavation and Aftermath*

This second group of recollections primarily relates to Mucking's post-excavation phases. Always a protracted ordeal and that much less a mass-event than digging, writing-up rarely fosters good stories (and humour; though, see also Sealey's caption comments for Fig. 4.68).

Chris Going

I joined Mucking Post-Ex, or 'MPX' from Wales in 1977 just as the dig was winding down. To accommodate us the entire sixth floor of a seven-storey office block containing the Central Library and the Museum was made available. There were still occasional forays onto the lower slopes of the 100 foot terrace, for example when the stone coffin – Grave 1086 – was found, and for a moment mud and oilskins were everywhere on the sixth floor.

But this was post-ex. The open space rapidly filled up with wooden shelving backed with hardboard to form small cell-like 'rooms' in which the post-excavation staff toiled. Dividing the floor into quadrants, were two canyon-like passages. Narrow skylights topped each wall and only at each corner did windows gave views across Grays and over the town to the Thames. Ostensibly I was there to work on the pottery from the Banjo enclosure, but my first job at MPX was to make one of these cells into a lockable sanctuary in which Tom J. wanted to keep various 'treasures' from the excavations not then in the British Museum: complete pots from the Roman cemeteries, the eagle-headed finial, and the more arresting *Buckelurnen*.

'Mucking Post-Ex' rapidly settled down to a routine and few concessions were made to the fact that we were now indoors. We worked a 40 hour week with two four-hour sessions per day, 8am until 12, a half-hour lunch break, then from 12.30 until 4.30. On the building's top floor a recreation area – including upholstered seats, electric kettles, sinks, and other facilities – awaited the Library and Museum staff, but Margaret clearly did not think these facilities needed to be used by us. Morning and afternoon tea and coffee breaks were held on the sixth floor stair-landing. Here we took our breaks standing or sitting on hard stairs. Conversations were stilted. During the break, regular as clockwork, the Hydrofoil from London curved past the dilapidated waterfront on its way to Zeebrugge and opened up the prospect of more glamorous places to live and work. From time to time ungainly 'Green Goddess' fire engines – there was a firemen's strike – as the Army dealt with the locals' chip-pan fires, would hurtle by.

Margaret sat at a table close to the intersection of the two corridors while Tom had a lair off to one side. During the day Margaret's ancient manual typewriter drummed away and from my door-less hardboard cubicle, the sound – its higher tones lost – resembled distant machine-gun fire in a war without end. From time to time Tom would silently emerge from his office to patrol the internal lines. People were mostly at their posts. You would sense someone in the doorway and, looking up, there he was gazing at you; wordlessly he would then pass on.

Unnecessary talk was discouraged, a restriction

that the volunteer pot-washers and -markers, mostly amiable local women, found peculiar. Once we were on the roof, in bright sunshine and Margaret ordered a pot-washer's portable radio silenced. I turned it on again, and when Margaret discovered this we had our first brisk exchange on management styles and interpersonal skills.

In retrospect, much of the machine gun-like typing that I heard must have been Margaret engaged in the creation of typescript facsimiles of the site's notebooks – a futile task. Vitally, however, when the first computer arrived, with Ian Graham from the Institute of Archaeology, she knew immediately that once everything was on it, much of interest could be retrieved. And she was quite right.

Jonathan Moffett

I came to MPX for six months in April 1980 as part of my year out in 'industry' on the Archaeological Sciences course at Bradford University. My role was to program the new Zilog Z80 microcomputer they had been given by Ian Graham of the Institute of Archaeology. Its purpose was to record the masses of data created by the excavation. I returned for a further three months in 1981 before beginning my PhD at the Institute, on microcomputer applications in archaeology, and Mucking was by far the most important part of that research.

Having been introduced to computers on the Bradford course, I discovered that I enjoyed making these toys (sorry, I mean tools) do things. The opportunity to write programs for archaeological purposes at MPX can best be summed up by the equation that says archaeology (aka 'guessing game') + computer (aka 'toy') + museum (in this case Thurrock) = amusement arcade (aka 'fun'); not a sentiment that either Margaret or Tom Jones would necessarily have appreciated.

This is not to say that programming was easy. Microcomputers in the early 1980s were beasts that needed to be tamed. The pages of the diaries I kept at the time often recorded the frustrations of programming in 8080 assembly-language. Added to that were the levels of 'understanding' of Tom, Margaret, and the others who worked on the sixth floor of Grays Thurrock Museum. They ranged from non-existent to a vague appreciation of the limitations of technology. However, I am very grateful for the experience afforded me at MPX; it provided invaluable lessons that can best be summarised by the following two quotes. Margaret wrote in the CAA81 conference proceedings: "One suspects that archaeologists will have less need to be articulate in a literary sense when there is a machine which will make the data self-explanatory." Four years later, in the CAA85 conference proceedings, I remarked that the problem with MPX's 82,000+ data records was that "… the archaeologists had developed no strategy to determine what they wanted the computer to do for them." The use of computers at MPX may have demonstrated the well-known and archaeologically appropriate maxim, 'Garbage In, Garbage Out', but such 'mucking-about' was undoubtedly fun (at least for me).

Paul Barford

I was employed in MPX Oct. 1978 to June 1981 (and then by HMBC from Dec. 1983 to Nov. 1985). There were about a dozen of us, Margaret and Tom and four others – mostly fresh graduates employed by DoE/HBMC, the rest local people (some part-time) paid for from other funds. Our workplace was in the crammed store to which all of the finds (except the metals and some of the grave-goods from the cemeteries) and archives had by 1978 been transported from scattered MPBW/DoE and other stores. This was on an upper floor of the Thameside centre, a hulking alien sixties brick and steel cultural island in the centre of the more homely architecture of Grays Thurrock. The working area of about 530m^2 was dominated by the bulk of the site archive, the space was largely filled by two blocks of floor to ceiling shelves containing all the finds and cabinets containing the records. It was in the interstices between them that we worked.

Deep in the midst of these stacks was the inner sanctum, Margaret's workspace, a well-organized desk with the single telephone and a typewriter in the centre, but the bulk of the area occupied by two filing cabinets and a sizeable personal archaeology library with substantial runs of a number of journals and a variety of other books reflecting her wide interests. From there she kept in touch with her many contacts in British archaeology, her clacking typewriter and telephone conversations could be heard from adjacent shelving stacks. Several stacks of shelves back was Ann Thompson at her desk quietly and systematically processing the material from Anglo-Saxon features. She had an enviable position by one of the big windows through which the outside world could be seen.

Tom occupied a narrow space between the ends of the western stack of shelves and the building's west wall. The area was defined by filing cabinets full of details of the cemeteries and a steel cabinet at the back with thousands of pounds worth of top-class camera equipment (safer here than in the caravans just below the site in which the Joneses still lived). Here also was a superb collection of classic antiquarian archaeology books worth thousands, which at the time were the primary references for Anglo-Saxon cemetery studies.

Whatever the long-term strategy for the post-excavation process was, at the beginning, there was a complication, in that the excavation of one part of the site, the North Ring, had been carried out by the CEU. The dictate came down from above, that our report of the block of site around the South Rings should be ready at the same time as the CEU report. Focus on this area of the site therefore dominated in the first years of MPX – no doubt to the detriment of the project as a whole in that the finds of different materials and

Figure 4.71. Mucking's post-excavation: top, Margaret working in an on-site office hut (photograph supplied by S. Elsdon); below, the 1980s in Grays, Thurrock, with early computing records (bottom).

different ages (the area was much cut-about by Roman ditches too) from the features in the area around the Rings was scattered in different boxes in different parts of the store. Getting it all together in advance of the computer catalogue was a major task in itself. In the process though, the team learnt much about the problems and best methods of handling the excavation's data-set.

There were two other priorities at this time, the Anglo-Saxon settlement material was being systematically gone through, recorded, drawn, records collated by Ann. Due to the interest in this phase of the site from outside the project, this was understandable. It was also a chunk of the site's history – with readily and unequivocally recognisable material evidence which could be dealt with in a relatively straightforward manner almost as a separate project (yet from which the group could again learn more about the specifics of handling the site's archive which would stand in good stead later). The other area was less satisfying. It was clear that there was a huge problem sorting out the pottery sequence through the first century AD, the transition from 'Belgic' (sic) to 'Roman' (sic). It seemed that it would be the Banjo area that held the key to this problem, so a lot of effort was put into trying to disentangle the sequence of the many re-cuts of the enclosure ditches. This was a delicate and frustrating task, as there were problems with untangling the records of some key relationships. In hindsight this was probably beyond the possibilities of a single person working in the conditions available at the time (for example the impossibility of laying out large spreads of pottery and other finds, and checking for cross-joins for example between different re-cuts of various ditches).

The limited number of draughts-people and support staff had to be juggled between these three main priorities and other tasks. The story of the Mucking excavation has always been 'making do'; with extremely limited resources (of course nothing new, and how much archaeology being done all over Europe at the time). In the case of the early years of MPX, the limited number of staff was one factor that slowed down the initial processing and

ordering of data. Of course the space on the fifth floor was also a limiting factor, it would have been difficult to accommodate many more staff among the shelves.

All the time the search was on to enrol outside specialists who'd be willing to take on the task (of course for free) of helping deal with a particular group of finds or features in return for access to the Mucking site archive. There were a number of people who took the bait, Margaret was very persuasive. Another group were researchers who approached Margaret for access to a particular group of objects prior to publication (Mucking seemed to have a bit of everything) The result would be that work would not infrequently be interrupted by the need to create a list of a certain group of artefacts or features and often pull the artefacts or records out for the visiting specialist to see, and maybe write something about.

The conceptualisation of the actual shape of the final report seems to have undergone several changes in the course of the project. Certainly at the beginning (while still on site) Margaret assumed that the report would be in the format (if not actually as) a Society of Antiquaries Research Report – the Portchester volumes, with their individual pits and their contents detailed being, I think, the sort of thing she had in mind. In such a format, the Mucking report would have been massive. New thinking and technical possibilities (microfiche and and digital archive) added the dimension that not all the report need be as a printed publication.

It was clear that (like the rescuing of as much endangered information from the site itself) Margaret saw the completion of the project as an obligation which weighed on us all. I wonder whether it ever occurred to her that the DoE was going to resign from what she saw as its own obligation to finish what they'd started and pull the plug on the funding of her project before it reached the end we all desired. I suspect that until it actually happened, she did not believe this was possible.

Isobel Thompson

Mucking gave me almost my first experience of real digging, as a student in summer 1969. Margaret's first task for us new recruits was to examine trays of finds and see if we could say what the unfamiliar objects (of all periods) were. Almost at once I related more to this than getting down to it out on the vast, bleak site, although Margaret was good at explaining how to find the base of a feature by the accumulation of pea grit. Given the soil conditions, this was often the only way of knowing the bottom had been reached. I learned the basics, and was rewarded by having to excavate the soot out of one of the Roman kilns, leaning over a plank laid across it and occasionally coming up for air. We camped near Margaret and Tom's caravan, all more or less putting up with the same quite spartan conditions; it was understood that the bread only went to the chickens when green spots appeared.

Later I followed Margaret and Tom's attempts to deal with the post-excavation at a distance, vaguely conscious of just how impossible a task it was. Margaret had ideas on how it should be tackled, but not the means, and although I visited the offices in Grays more than once, and saw some of the material, it was quite unlike any other site archive. It just wasn't arranged in a way which made it possible to retrieve what I was looking for. But one thing I do remember – Tom did the illustrations for Margaret's lectures, and found a way of photographing pots with their shadows cast behind, giving the profile of the vessel as a scale drawing would. Typically he never mentioned this, and I did wonder how many people noticed.

Helena Hamerow

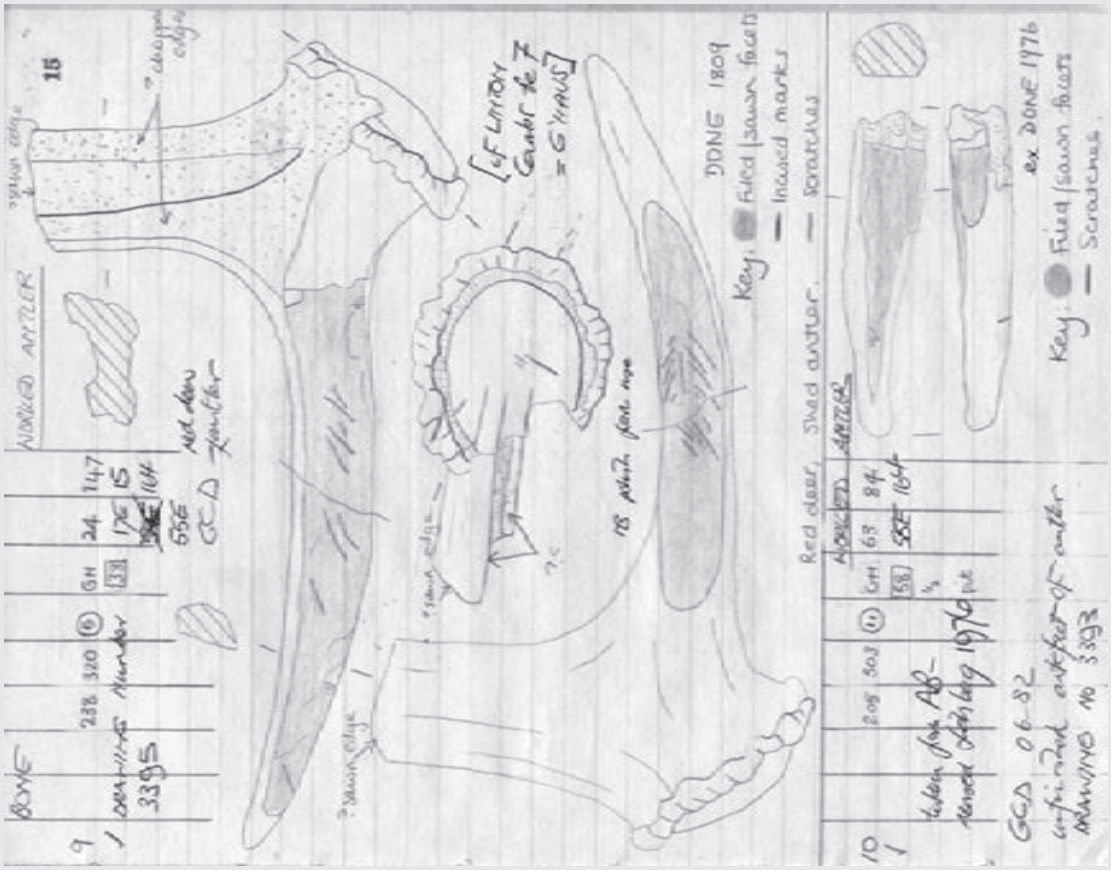
For better or worse, I never actually dug at Mucking. I arrived in the UK as a graduate student in 1983, some years after the dig finished, but had already met Margaret and Tom a year earlier, when I spent a few weeks in England researching an undergraduate dissertation on Anglo-Saxon settlements. Margaret had been enormously helpful, putting me in touch with a range of specialists whose names and addresses I would never otherwise have found, based as I was at the University of Wisconsin. When I began a doctorate on the Anglo-Saxon pottery from the Mucking *Grubenhäuser*, Margaret again could not have been more helpful and enthusiastic. Quite why she was prepared to entrust such important material to a complete novice (and a foreign one at that) remains a mystery to me, but her belief that my work was worth supporting made all the difference, as it did to many others who undertook research on various aspects of the Mucking excavations at Margaret's instigation.

Although I never worked on the site, I did get a flavour of what conditions had been like through my regular visits to the rather austere post-ex. offices in Grays, Thurrock. On one memorable occasion, a sandwich that had been provided for me resulted in a violent attack of food poisoning. Margaret's 'cure' was to dose me up with brandy before sending me back to Oxford on the train, where I slumped in a compartment that seemed curiously to spin round and round….

John Barrett

My recollection of Margaret, and this is obviously looking back over a number of years now, was that she was always seeking out new approaches to the

Figure 4.72. (opposite) Small Finds Notebook catalogue entries. Notice the quality of the drawing generally (especially the worked antler from GHs 33 & 58, left) and, also, the extent of cited parallels for the Roman bronze flagon handle, No. 416 (top right).



material, and quite hungry for people to engage with the site and contribute to the interpretation. I certainly feel in some way that I failed in not working harder to contribute to publication and support her. One problem undoubtedly was that there was no clear timetable, or what we should perhaps call 'project design' for publication, instead the post- excavation – a bit like the excavation itself – seemed an open-ended commitment. But I now feel (this may be doing others an injustice) that there was also an inherent sexism at work: she was regarded as difficult and obsessive, and it was easier to dismiss her as slightly nutty than to accept the remarkable achievement that the excavations represented.

Tim Darvill

October '76 and a first meeting with Margaret and Tom Jones who came to Southampton to give a lecture to the University Undergraduate Archaeology Society. They were striking figures and dominated the lecture-theatre. Rather than standing behind the rostrum they sat on the front bench where they had also spread out a range of off-prints of interim reports and booklets about their work at Mucking. They were selling them (even to poor undergraduates) to help boost the excavation funds I guess. Several of us bought copies; I happened to see some of mine recently while sorting out some bookshelves – a home-made cover wraps an offprint from BAR 6 published two years earlier is one that stands out. It cost me 12p if I paid what it says on the cover ... that must have really helped the coffers! What did we make of the lecture? It was delivered in a slightly bombastic way, blasting through the things that have been uncovered until then, emphasizing the race against time that they were engaged in to 'rescue the past', and taking a few sideways swipes at officialdom along the way. It was our first introduction to the kind of landscape archaeology that was going on down on the Essex gravels, and we were impressed. Tom and Margaret joined us, as was customary, in the *Wagon and Horses* afterwards for a drink and chat.

But it was not because of Mucking that I came to know Margaret and work with her. Between 1957 and 1965 she had excavated an extensive prehistoric and Roman site at Roughground Farm near Lechlade in my home county of Gloucestershire. Nothing was published on it apart from a few paragraphs in the MPBW's annual round-up of excavations, but it was known to have pits with Beaker and Grooved Ware pottery. Thus when researching the Neolithic of the area as a PhD student I wrote to Margaret and asked her if I could see the material. After a short exchange of letters the pottery, flint, bone and worked stone from Roughground Farm (and also that from another site she dug at The Loder's in Lechlade itself) arrived by post in thick brown cardboard boxes so familiar to anyone working on 'Ministry' excavations at the time. No need for wrapping; the boxes were Sellotaped-up, the address was written on the top, and stamps affixed. Copies of her notebooks followed. Close-written comments and descriptions around plans, sections, and sketches of finds. They took some deciphering. The message was to write up and publish the material if I had the time (which I did for both sites, jointly authored with Margaret and others). I came to understand that it was typical of Margaret to trust others and help people where she could. She had a generous spirit even if first impressions suggested otherwise.

Fast forward ten years to 1986, the last time I saw Margaret in person (although Christmas cards were regularly exchanged through later years). It was a chance meeting in the British Museum – they say that if you hang about on the steps of the BM long enough you'll eventually meet every archaeologist in the world, but neither of us was doing that on this occasion. The exhibition *Archaeology in Britain since 1945* was in full swing and Margaret was there as a casual visitor eager to see how the case containing her Anglo-Saxon finds from Mucking looked. It turned out to be a long afternoon as she described every piece to me, but eventually we did get round to talking about the Neolithic too. That was one of Margaret's great strengths: she could talk about any period because at some time she had excavated relevant material and had taken the trouble to read-up about it even if little was ever written-up.

Tony Wilkinson

I seem to have first met Margaret Jones when I worked on the Neolithic causewayed enclosure at Orsett (some time in the murk of the 1970s). At that time Mucking was in full swing, I was very junior and was suitably intimidated by the scale of the Mucking excavations, as well as Margaret's strong and forceful personality. However, I only really started to get to know her when I began the rescue excavations on the A13/M25 duel carriageway for Essex County Council (*c.* 1979). Mucking's post-excavation was then underway and, following my visit, Margaret (who was clearly missing field archaeology) immediately volunteered to work with us.

This was as part of a local group of archaeological volunteers, who would turn up with trowel, knee-pads, buckets (and, if remember white wellies for Margaret, *etc.*) at WEEK-ENDS! Of course, being a Near Eastern archaeologist that was not as difficult as it might have been, but having someone of Margaret's focus and exceptional skills as a volunteer was a trifle intimidating. Nevertheless, we seemed to get on, and more important, although Margaret may have seemed like a rather forceful administrator, she really did care about archaeology, and her main concern was that someone was in charge; she did not boss me around – quite the opposite. I certainly learned a huge amount from her, and after that experience we became rather good friends.

This more enduring relationship came about because at the time of the A13 excavations I was looking for a long-term base for my archaeological work. Lincoln proved to be an ideal location for an archaeologist: cheap housing, but with lots of archaeology, and most important nobody knew me (being a former member of the Central Excavation Unit, anonymity was a major factor). I also had contact with Margaret and Tom when I worked as side-kick to Dermot Bond when he was excavating the Mucking North Rings for the Central Excavation Unit. Again, Margaret was very encouraging to us, even though we were interlopers onto her terrain.

When it came to our move to Lincoln, of course, Margaret, immediately pointed out the people she knew in Lincoln, who would provide a valuable archaeological network (but which would also unveil me as an ex-Central Unit member). So I was introduced to Joan Varley (retired from Lincoln Museum), plus various folks at the Lincoln Archaeological Trust. All these contacts proved invaluable, and it was always delightful to see Margaret and Tom when they made their occasional visits to Joan's house in Lincoln. At this time, I believe Margaret and Tom had bought a house in the Welsh borderlands. We continued to keep in touch through much of the 1980s, but then as my focus turned more and more to Near Eastern Archaeology we gradually lost contact.

I must say, it was wonderful to get to know Margaret as a friend, volunteer, and mentor. Since then in my travels in the Middle East and North America I have met former Mucking diggers, who have always said good words about Margaret and Tom.

Dominic Powlesland

I first visited Mucking when at school; it was very bleak in a way that I did not experience again until I first stood on the edge of West Heslerton Quarry in the winter of 1977/8, just as the Mucking excavations were drawing to a close. I applied to join as a volunteer and was hugely entertained by the volunteer information sheet supplied with drawings of all the equipment used: wheel barrows, buckets, trowels, *etc.* In the end, I spent that summer digging in Winchester and did not really meet Margaret properly until I visited Mucking's Post-Excavation programme, when I became interested in archaeological computing, and then later when she made two very emotional visits to West Heslerton.

The Mucking excavations were way ahead of their time, overlooked or misunderstood by many who could not grasp the nature of the project. At the time there was a fashionable focus on evolving methods in urban archaeology, and the Jones's tremendous contribution to and influence upon approaches to rural and landscape archaeology were sadly given insufficient credit. Mucking was the first of the 'super excavations', exposing hectares of 'emptiness' covered with stratigraphically 'isolated' features of every period and, as such, it was mind-blowing. Its results could probably correctly be described as awesome in their contribution to our appreciation of the use of landscape. Simply conducting the excavation was an extraordinary achievement; during camping-excavations I've heard late evening criticism of aspects of the excavation, but never from those that were present or visited the site. Margaret burst into tears when seeing the first huge, Jones-inspired trenches across the Anglian settlement at Heslerton, on the basis that 'I should have done a better job' – how wrong she was!

It is now difficult to perceive the academic pressure she was under to support the historical narrative that prevailed at the time with reference to Early Anglo-Saxon England. Its framing as part of Medieval archaeology, rather than within an essentially prehistoric framework, created anticipation that somehow the material culture of the period should be inherently dateable and easily sequenced and created tremendous challenges both for Margaret and the post-excavation team. There was so much that was 'new' or had not been done before about Mucking, this not only made it challenging for those working on the project but also for those providing guidance and funding. Mucking was amongst the first archaeological excavations to attempt large-scale computerisation of the record. Once again, this was far ahead of its time; though, flaws in the record meant that the results of analysis failed to flexibly address some of the key questions which were not noticed until it was too late to rectify them. This was an important lesson learned when archaeological computing was in its infancy; it was by no means a waste of time and the data that was recorded did contribute to the analysis, as it enabled Jess Tipper to undertake the re-analysis of the evidence from the site's *Grubenhäuser*.

New and different evidence from West Heslerton, and the fact that the Mucking archive could successfully be re-visited, means that we are now able to interpret much of the evidence from Mucking in different ways; this is a credit to Margaret. Mucking retains a pivotal role in the archaeology of Early Anglo-Saxon England, and without it many of the questions specifically targeted at Heslerton would not have been considered.

The last time I saw Margaret she laughed heartily. This was unusual, and she was clearly excited to see 'her' subject moving forward. To anyone who has attempted a project of the scale of Mucking it should come as no surprise that to Margaret, in particular, Mucking had an emotional attachment like that with a child – a child that was challengingly unpredictable and unruly. The Jones's were amongst the first to appreciate *the need to stand in the middle of a large open-area excavation and look out*, rather than stand on the edge of the trench looking inwards. It is a testament to their determination that Mucking

has provided an evidence base that will contribute towards reconfiguring our interpretations of later prehistoric to Medieval settlement on the sands and gravels that line river valleys throughout the lowlands of southern and eastern England for generations to come.

Elizabeth Healey

The Mucking excavation was a 'training ground' for a whole generation (and probably more) of archaeologists. Although I never actually excavated at the site, I did visit several times, first I think in December 1966. My first thought was that it was the most aptly named site I had ever come across – the bleakness, the mud, the caravans, and worrying about what my mother would say about the state of her car when I returned home.

During the course of fieldwork itself, provision for any post-ex was fairly minimal; I seem to remember, though some cataloguing went on in Thurrock. Excavation directors would come and go for short periods in Victoria Street (where most of the post-ex was done in those days). Margaret was always forthright in her demands and as a young 'pottery' assistant (as post-ex people were generally called back then, regardless of discipline). I was a bit in awe of her and I remember she asked for something that was not supplied (I think it was fairly trivial) and it fell to me to tell her that she couldn't have it. I thought the heavens would fall in and that would be the end of any association that I might have to Mucking, but quite the reverse – she just said ' oh, alright then' and in fact we turned out to have an easier relationship thereafter. I suspect with hindsight that, with some justification, she felt hard done by and not always supported in the way she expected and may have seen me as a sort of ally.

Margaret was primarily an excavator and not an academic archaeologist, but she was always keen to find new lines on things. She often sent snippets of information she came across about all sorts of things, including arrowheads or gun flints. The writing of the excavation report was also uppermost in her mind, though how she thought it would come about was never clear to me. Everything was recorded in meticulous detail in notebooks with sketches, and a special notebook (NB55 – itself several volumes) where anything unusual was also indicated. Everything was recorded by northing and easting; while this was useful in many ways, it also sometimes makes it difficult to disentangle all the information from an individual feature. In 1977, when most excavation ceased, she and Tom and the artefacts began the move from Acton to Thurrock Museum, (though still living in a caravan) she wrote 'the main problem is that the DoE is being very dilatory in agreeing a financial basis for post-excavation work.' In 1985 she related: 'did you see the advert (*Guardian*) for the new MPX project in the BM? I get the feeling matters will drag on for years more.' It was in 1977 that the computerised catalogue began, and a year later she prophetically wrote: 'what I had in mind when suggesting a provisional classification was that if a catastrophe occurred we should have *some* information, e.g. so many scrapers, blades, cores.' That indeed is what we now have; any subsequent non-retrieval/loss of the detailed lithic data cannot be laid at her door.

Margaret was frugal (it is rumoured that she fed the excavators on grass for their greens). She was also demanding and wanted to control everything (including Tom). In her absence Tom once showed me with glee his locked filing cabinet drawer containing the things 'forbidden' by Margaret (though I can't help but think she actually knew about it).

Mucking clearly took over Tom's and Margaret's lives. She wrote rather sadly in 1978, more than twelve years after the excavation started, of her cottage at Preston Wynne in Herefordshire: 'when we took it over it was semi-derelict, and we never got it ship-shape before Mucking swallowed us; it now needs re-excavating ... Also I hope to get away more often from post-ex. than was possible before the dig ... '. It was a while before that was achieved.

The Plaza, Other Parts and Landscape Development

Having outlined the site's Iron Age structures and enclosures, we now turn to the settlement's 'later' core: The Plaza's extraordinary ritual/ceremonial ground. Thereafter, other facets of the period's landscape are outlined, followed by Conquest Period/Early Roman developments. This latter summary is directed towards the 'framing' and maintenance of The Plaza's space, with the detailed presentation of its settlement appearing in the Roman volume.

The Plaza (and Prehistoric Cemetery IV)

As has been outlined above, this complex was only effectively 'assembled' during the course of the current publication initiative. Termed by us *The Plaza*, its components had previously been distinguished, but just never put together. It was a bounded,

square-like 'ground', variously flanked by post-lines, granaries and 'blocks' of square barrows (Figs. 4.73 & 4.78). It was the excavator's lack of appreciation of the latter that seems to have led to the failure to appreciate this setting for what it was. As already discussed, Margaret Jones seems to have originally thought that the barrows were interlinked series of Belgic timber houses (see Fig. 4.22), that simply happened to have cremations set in their centres in four instances.

Before progressing, a fuller appreciation of the situation of the complex is necessary, as in many respects it sat at the core of the site's later Iron Age/Early Roman landscape and is crucial to the understanding of the impact of the 'The Conquest'/ transition upon the terrace's communities (see Fig. 4.2). While it was surrounded – albeit with a marked stand-off – by the main Iron Age settlement enclosure compounds (Fig. 4.35), The Plaza was certainly not itself of domestic character. At the same time, it went on to dictate the arrangement of the Roman Double Ditch Enclosure and raises key questions concerning 'settlement' continuity and ritual power, as will be further explored both in this and the ensuing Roman volume.

The northern alignment of square barrows extended over *c.* 5 × 15m and consisted of four *c.* 4 × 4m 'squares', defined by ditches *c.* 0.25–0.8m wide and 0.13–0.36m deep (Figs. 4.74–5). Referred to hereafter as Square Barrows (SQ) 1–4, the exterior side of the northwesternmost was not recovered. Cremations were found in the approximate centres of each:

Square Barrow 1/Cremation 1012 (1341N × 608E) – Adult
Notebook 257.92, 130
Grave pit: Shallow, oval scoop, measuring 0.54 × 0.44 × 0.11m deep.
Pit fill: Medium brown sandy soil. Much cremated bone, but no charcoal. The cremation appears to have been deposited loose, or in an organic container, in the grave-pit.
Finds in fill: Two sherds of (?residual) flint-gritted pottery.
Bone: Poor condition, complete burning, white in colour, 97g, Max L. 37mm.

Square Barrow 2/Cremation 1011 (1338N × 618E; Fig. 4.75) – Adult Male
Notebook 257.101
Grave pit: Roughly circular pit (*c.* 0.48 × *c.* 0.53m), with a rounded profile.
Pit fill: The cremation urn was placed upright slightly off-centre in the pit, and contained the cremated bones and other grave goods.
Grave goods:
1011.1 Lower part of a large, pedestal-based jar with a hollow foot, described by Thompson as a 'large HM [hand made] copy of an A5 pedestal urn, i.e. 'trumpet' pedestalled. The join between the base and body is very clear, as they do not fit' (Thompson 1982, 783). The fabric is not grog-tempered. Thompson considers the A5 'trumpet pedestal' form to be essentially an Essex variant of the series, and dates the form to the first half of the first century AD, noting its apparent absence from first century BC sites (*ibid*. 64–9). This form was made at Grays-Palmers.
1011.2 Copper alloy brooch, with a perforated catchplate. Found among cremated bone. Complete Simple Gaulish (Continental Colchester) type, with elaborately fretted openwork catchplate. Long, narrow, tapering bow of flat section and profile. 8-coil spring with external chord and hook. The extremely fine tip of the pin survives, bent up at an angle. Was this brooch ever used? Possibly burnt but not distorted. Length 96mm. Analysed examples are brass. A Continental form in origin, but enough have been found in Britain to suggest they may also have been made here. Several similar in graves at Deal (*e.g.* Parfitt 1995, fig. 43, 17). Dating: Augustan on the Continent; the King Harry Lane seriation implies they were still placed in British burials towards the mid first century AD; Stead and Rigby (1989) Type B (see Haselgrove, Chap. 5, No. B5).
1011.3 Iron flat sheet disc with edges broken, a central rectangular hole and remains of a second broken sheet attached to the lower surface close to the hole. Fragment of bone also adhering. Diameter 80mm, hole 11 × 8mm. The possible function/identification of this piece is discussed in the main text below.
1011.4 (not illustrated). Rectangular cross-sectioned narrow copper alloy strip, with slight lateral and longitudinal curvature and angled end with an angled transverse break. L. 32mm, W. 5mm, Th. *c.* 2mm, Wt. 1g. The surface is pitted and corroded with evidence of mineral loss indicative of burning. The curvature and angled end of this item suggest it may be a tine from a set of tweezers, although this cannot be confirmed.
Bone: Poor condition, complete burning, white in colour, 1299g, Max L. 84mm.

Square Barrow 3/Cremation 1010 (1334N × 632E; Fig. 4.76) – Adult
Notebook 257.92
Grave pit: Oval in shape, with steep sides and irregular base, measuring 0.69 × 0.51 × 0.39m deep.
Pit fill: No data; cremation urn placed slightly off-centre in pit.
Grave goods:
1010.1 Large high-shouldered storage jar, in 'Belgic' vesicular ware. Two rows of horizontal 'stab' decoration on shoulder, with some horizontal incised lines below, and some lattice decoration; flattened bead rim. Oxidised on interior, and some evidence for differential firing. Used as cremation urn. Mucking product (JA01; Ht. 216mm; Base 108mm; Rim 168mm; EVE 1.0). Early to mid first century AD.
Bone: Poor condition, complete burning, white in colour, 560g, Max L. 22mm.

Square Barrow 4/Cremation 1013 (1330N × 644E) – Adult Female
Notebook 257.91
Grave pit: shallow, circular scoop.

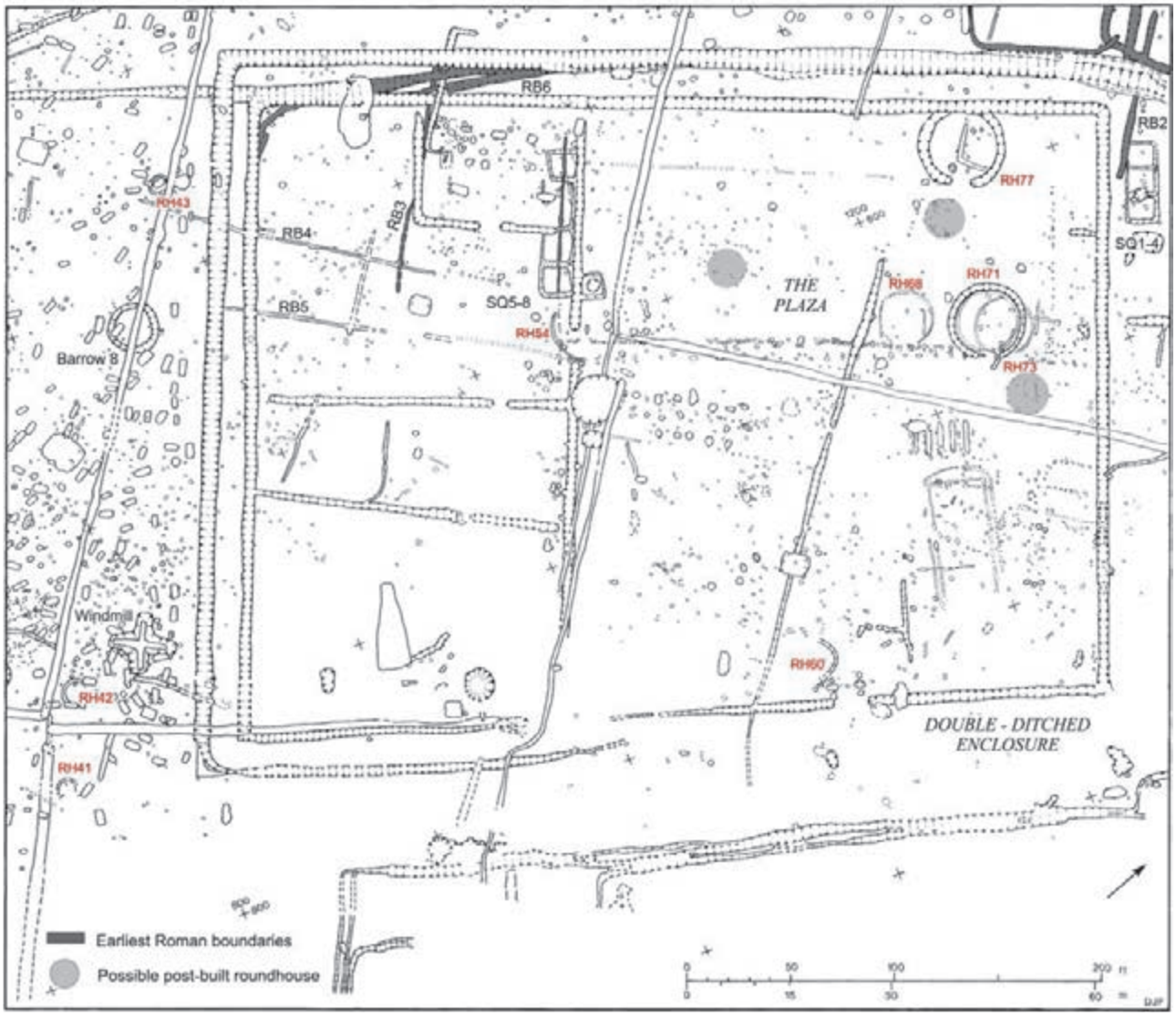


Figure 4.73. The Plaza and Double Ditch Enclosure-area base-plan.

Pit fill: 'Medium brown' [soil], and some small pebbles. Unurned cremation.
Grave goods: None recorded.
Bone: Poor condition, complete burning, white in colour, 484g, Max L. 31mm.

Five other unfurnished cremations occurred around the northern and southeastern sides of SQ4 (Fig. 4.75). Cremation 1007 (4058) was set at its exterior corner, with the others at a 2.4–5.0m stand-off.

Cremation 1003 (1339N × 661E; Fig. 4.76) – Adult
Notebook 253.80; 255.87
Grave pit: Sub-rectangular shape, disturbed by animal burrows.
Pit fill: Sandy fill with areas of charcoal in fill.
Finds in fill: None noted. Two small abraded flint-gritted sherds.
Grave goods: None recorded.
Bone: Poor condition, complete burning, white in colour, 87g, Max L. 24mm.

Cremation 1004 (1317N × 659E) – Adult
Notebook 255.25
Grave pit: Unclear shape, disturbed by animal burrowing (cut by GH115).
Pit fill: No data.
Finds in fill: Grass-tempered body sherd, eight abraded pot fragments.
Grave goods: None recorded.
Bone: Poor condition, complete burning, white in colour, 140g, Max L. 27mm.

Cremation 1005 (1345N × 646E; Fig. 4.76) – Adult
Notebook 253.83; 255.115–16
Grave pit: Irregular shape.
Pit fill: Contains patches of charcoal, red pebbles and pink sand.
Finds in fill: Two abraded body sherds and three iron nails.
Grave goods: None recorded.
Bone: Poor condition, complete burning, white in colour, 142g, Max L. 52mm.

Figure 4.74. Photographs of square barrows: left, 1–4 (looking northwest); right, Square Barrows 7 & 8 (top), with detail of '7' below.

Cremation 1006 (1353N × 652E; Fig. 4.76) – Adult
Notebook 253.82
Grave pit: Oval, 0.2m deep; evidence of burning around edge of pit.
Pit fill: Very dark brown loam, vitrified sand and charcoal.
Finds in fill: Bronze scraps.
Grave-goods: None recorded.
Bone: Poor condition, complete burning, white/blue in colour, 135g, Max L. 36mm.

Cremation 1007 (1340N × 660E; Fig. 4.76)
Notebook 257.107
Grave pit: Sub-circular. No data other than a plan.
Pit fill: No data.
Grave goods: No data.
Bone: No data.

This small group of cremations located just outside the line of square barrows were all unurned. Details of the fill were only available for three (1003, 1005 & 1006). All of these contained charcoal and sand; 1006 also had a dark brown loam. Small quantities of cremated bone were recorded from each, ranging from 87g in Cremation 1003 to 142g in 1005 (unfortunately no data survives about the form or fill or quantity of bone from Cremation 1007). Given the 'scoop-like' profiles of Cremations 1003, 1105 and 1006, as well as the scorching of the sides of latter two, it is probable that these were the bases of pyres themselves and that the nails shown in the fills of Cremation 1005 derived from burnt structural timbers used as fuel (see Fig. 4.76). Similarly, Cremations 1004 and 1007 might also have been pyre-related features rather than cremations *per se*.

The four cremations within the barrows (1010, 1011, 1012 & 1013) were all set within small circular or oval pits. Two were placed in earlier first-century AD urns, whilst the others were either deposited loose or within organic containers that had since rotted away. Cremation 1011 was the most elaborate of the burials in this group: in addition to the urn (a pedestal-based jar), a copper alloy brooch (possibly burnt), a copper alloy strip (possibly a tine from a set of tweezers) and a circular iron object were recovered. These were all placed within the urn. Quita Mould further reports of its iron piece (1011.3):

> The circular sheet has a rectangular hole in the centre with a small fragment from a second broken sheet fitting attached to one face close to it. It is likely to be a lock plate though angular plates are more common than circular. It suggests that a box or casket was placed on the pyre to accompany the body.

Alternatively, this may have been a circular knife (see e.g. Hill *et al*. 1999, 256–7 and Fitzpatrick 2013).

Cremation 1012 was unurned, but contained a

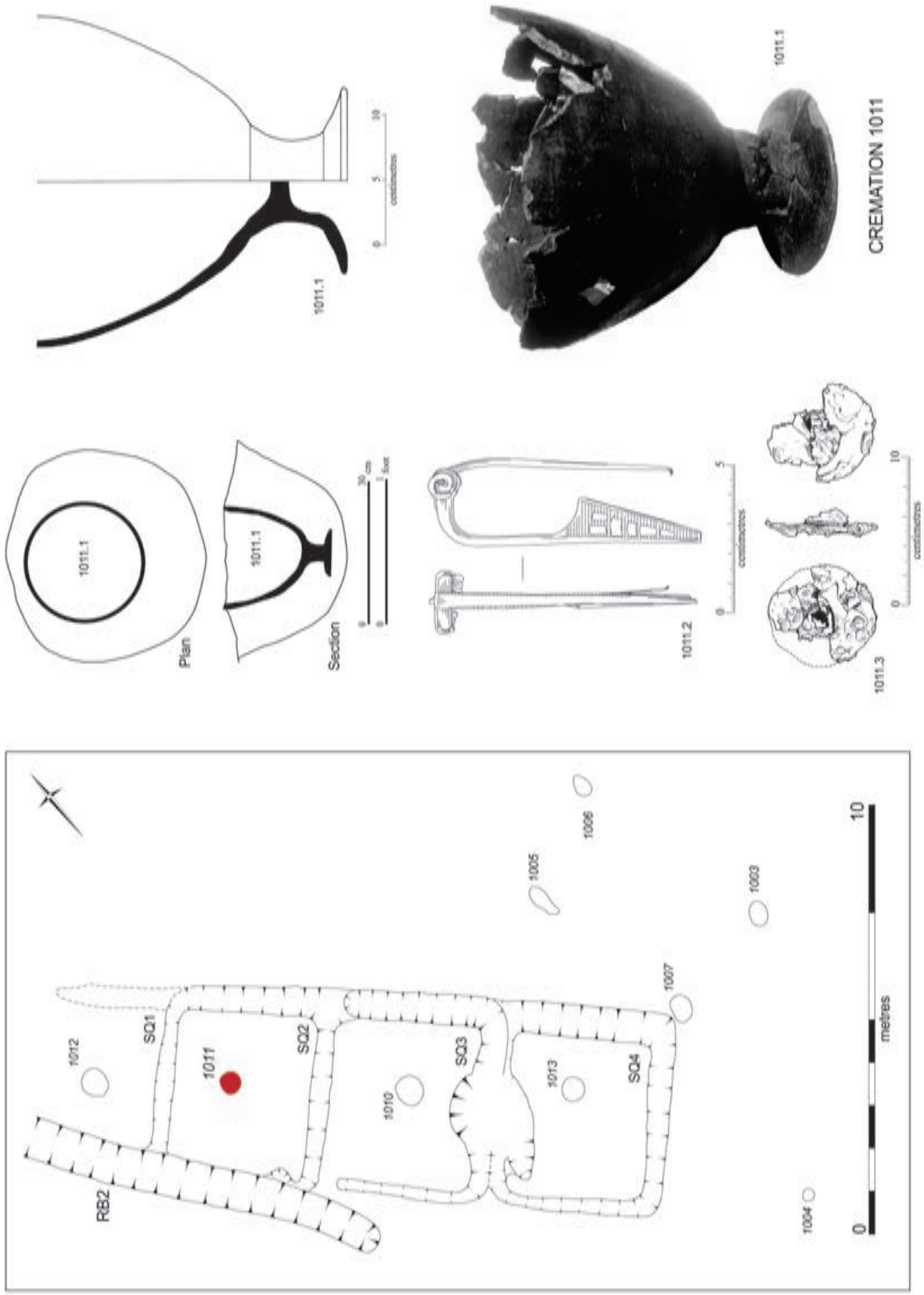


Figure 4.75. Square Barrows 1–4, with plan and grave goods, Cremation 1011.

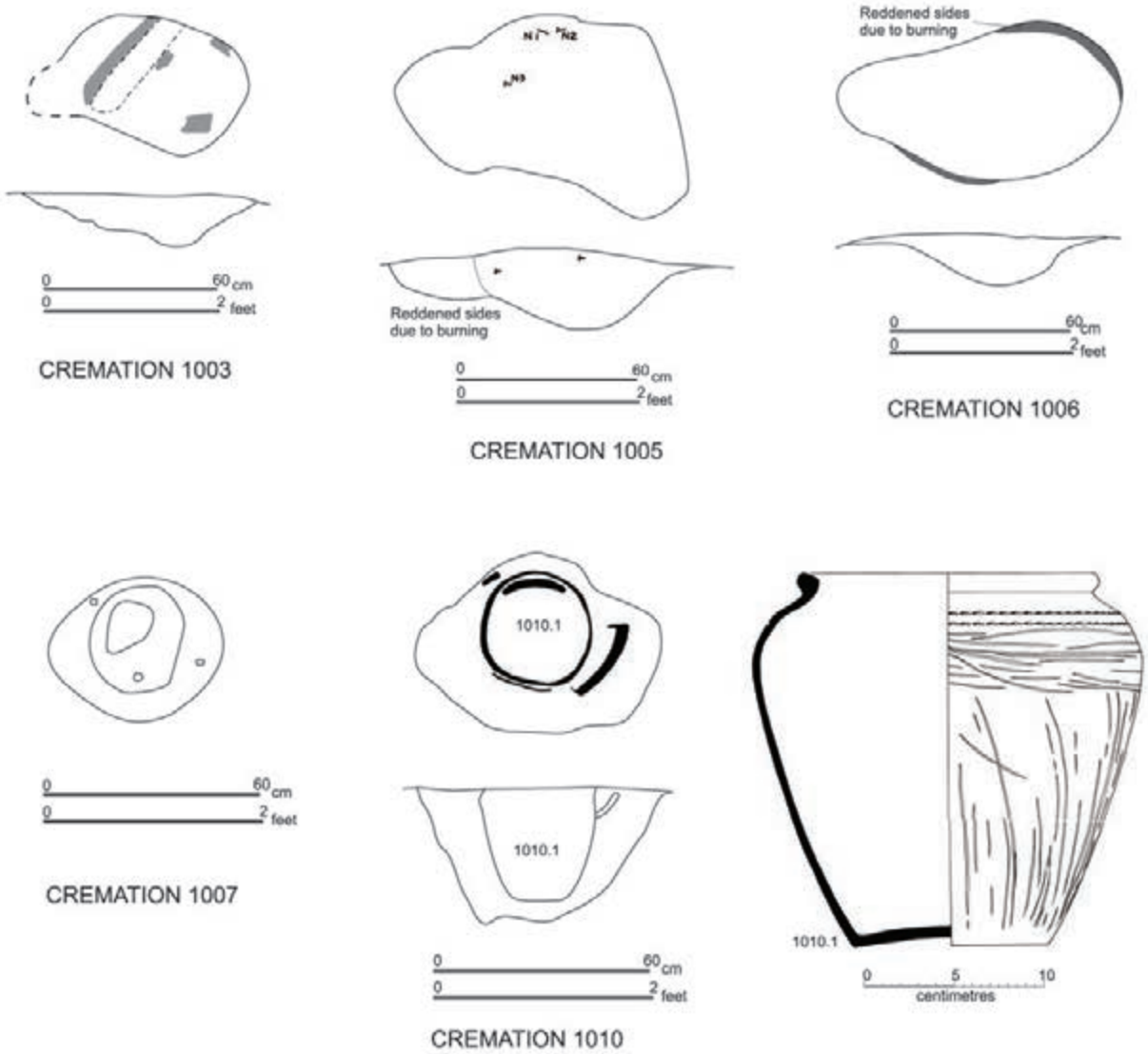


Figure 4.76. Cremations 1003, 1005–7 and 1010.

substantial quantity of cremated bone. Interestingly, there was no charcoal, suggesting careful separation from the rest of the pyre debris.

A partial construction sequence for the barrows could be ascertained by the relationship of the intercutting ditches (see, also, Fig. 4.22). Containing Cremation 1010, SQ3 seemed the latest, cutting the ditches of both SQ2 and 4. Thus, it seems to represent an infilling episode. Whether the two earlier barrows were constructed at the same time or separately cannot be established, as their ditches had only undatable fragments of fired clay and animal bone. Of the cremations outside the square barrows, 1003 contained abraded flint-gritted sherds. These were probably residual and, therefore, of little use for dating purposes other than to provide a very loose *terminus ante quem* of Late Pre-Roman Iron Age or later. None of the other cremations had any dating evidence.

Because so few of the cremations had information concerning either their pit fills or the human bone recovered, the inferences that can be drawn about the cemetery's cremation practices are limited; however, there are some factors that are worth noting. Both Cremation 1005 and 1006 had heat-affected fills, with the pink sand and reddish pebbles within 1005 suggesting that the fill was exposed to temperatures in excess of 500°C. The fill of 1006 included vitrified sand, indicating that it had been exposed to even higher temperatures (the melting point of pure sand is 1710°C, although this can be lowered somewhat if it is mixed with other material). The fact that the fills have reached such temperatures shows that these cremations must have been filled with pyre debris. In contrast to 1005 and 1006, the fill of 1012 contained a similar amount of cremated bone (97g) but no charcoal. In this case, the bone must have been carefully separated from the rest of the pyre material

before burial. It is notable that the cremation burials within definite ditched 'squares' (Cremations 1010, 1011 & 1013; not 1012) contained far greater quantities of cremated bone (560g, 1200g & 484g respectively), as well as all the grave-goods: could at least some of the other cremation burials actually have been the pyre sites from which this bone was collected?

A near-matching array of square barrows lay parallel, some 80m to the southwest. These consisted of four definite square-ditched settings (SQ5–8), but might have also involved two or three more (Fig. 4.77). Comparable to the northern group, there was a main alignment extending over some 5 × 22m. Barrow 5 lay at its western end, with SQ6 and 7 conjoining in the east. As is apparent on Figure 4.77, between SQ5 and 6 there was a *c.* 7m-wide 'gap' as it was open along the southern side. A ditch linking the northern side of SQ5 and 6, in effect bounding this gap, suggests that it was eventually intended to infill this interval by inserting two more barrows. Within that area and immediately south of SQ5, were two parallel, *c.* 3m-long ditch slots. Of comparable scale to the barrow's boundaries, these suggest either an alternative mode of mortuary setting or related structure (?shrine).

There were two further barrows in addition to the main alignment. Extending off the northern side of SQ7 in the east was SQ8, a slightly smaller setting; a single ditch that ran from the southern side of SQ6 might also have defined the eastern aspect of yet another, but the status of this is sufficiently ambiguous not to warrant enumeration.

The two linked barrows at the southeastern end (SQ6 & 7) were distinguished by the fact that their northern sides seemed to bow out somewhat. These would seem to be the earliest in the group, with SQ8 added to the side of SQ7 and the ditch-line running west from SQ6 to SQ5 (integral with the latter's northern side) seeming to re-cut the western boundary of SQ6.

Unlike the northern square barrows (Nos. 1–4), no cremations were found definitely associated with this group. This may attest to a different mode of interment: the cremated remains perhaps being deposited on the ground surface and then sealed by a low mound. This is not to say, however, that cremations did not occur in the immediate vicinity and which may well have been indirectly associated. Complications arise due to the fact that this barrow group lay along the northern side of what was to become Romano-British Cemetery II. This cemetery, of later first- to early third-century date, included both inhumations and cremations. Indeed, and as is outlined in the Roman volume, the northern side of that cemetery would seem essentially to have been defined by the line of ditch A6A,[44] which re-cut along the northern perimeter of the main SQ5–7 alignment. A cremation within the fill of that feature (No. 908), along with Cremation 791 west of SQ5, would definitely seem to have been of Romano-British attribution. Of the other five cremations within the immediate vicinity only one was unequivocally Late Iron Age:

Cremation 790 (1086N × 537E; Fig. 4.77) – Adult
Notebook 164.56, 209.61, 209.92, 211.1
Grave pit: Circular, 0.53m in diameter, 0.15m deep.
Pit fill: Dark, charcoally fill including large oak charcoal fragments intermixed with cremated bone and metal objects.
Grave furniture: None. No stain noted.
Grave goods:
790.1 (Lab. No. 727031) Severely fragmented and friable iron latch-lifter. The surface is highly degraded and delaminating. One part of the object is reasonably well preserved and consists of a flat rectangular bar with a distinct slanted 'S'-shaped angle, with a slight narrowing in width; L. *c.* 90mm, W. *c.* 6–7.5mm, Th. 5mm, Wt. 11g. A second fragment is severely corroded and delaminating, but preserves the general shape of the object and is of relatively greater width (*c.* 9mm); several smaller corroded fragments are thought to be part of this object. Small pieces of burnt, calcined bone adhere to several of the fragments, indicating that this item was included in the funeral pyre. Latch-lifters are relatively common finds, found on both Late Iron Age and Romano-British sites, with this example possibly similar to that found at Hod Hill, Dorset (No. 05 in Manning 1985, 88).
790.2 (Lab. No. 726918) Wire brooch with 4-coil spring and external chord. In pieces, but complete. Open triangular catchplate, with tip of pin *in situ*. Straight wire bow with fairly sharply angled shoulder. Burnt, with wood impressions in the corrosion. L. *c.* 95mm. Dating: La Tène D2a on the Continent; probably earlier first century BC in Britain (see Haselgrove, Chap. 5, No. B2).
Bone: Large fragments of bone including skull fragments. Poor preservation; incomplete burning; white/grey in colour; max L. 52mm; 1000g.

Of the other four cremations, two lay within the interior of square barrows (Nos. 5 & 7), but were located well off their centres and were therefore not conclusively related:

Cremation 904 (1083N × 519E) – Adult
Notebook 223.72, 74
Grave pit: No data. Earlier than ditch. Damaged by ploughing.
Pit fill: Contained streaks of sand and runnels of loam that suggest animal disturbance. Residual IA sherds.
Grave furniture: No data.
Grave goods: No data.
Bone: Poor preservation, complete burning, white in colour, 50g, Max L. 48mm.

Cremation 1092 (1057N × 570.5E)
Remarks: Aside from containing bronze of some description and an iron nail, no further details of this interment were recorded.

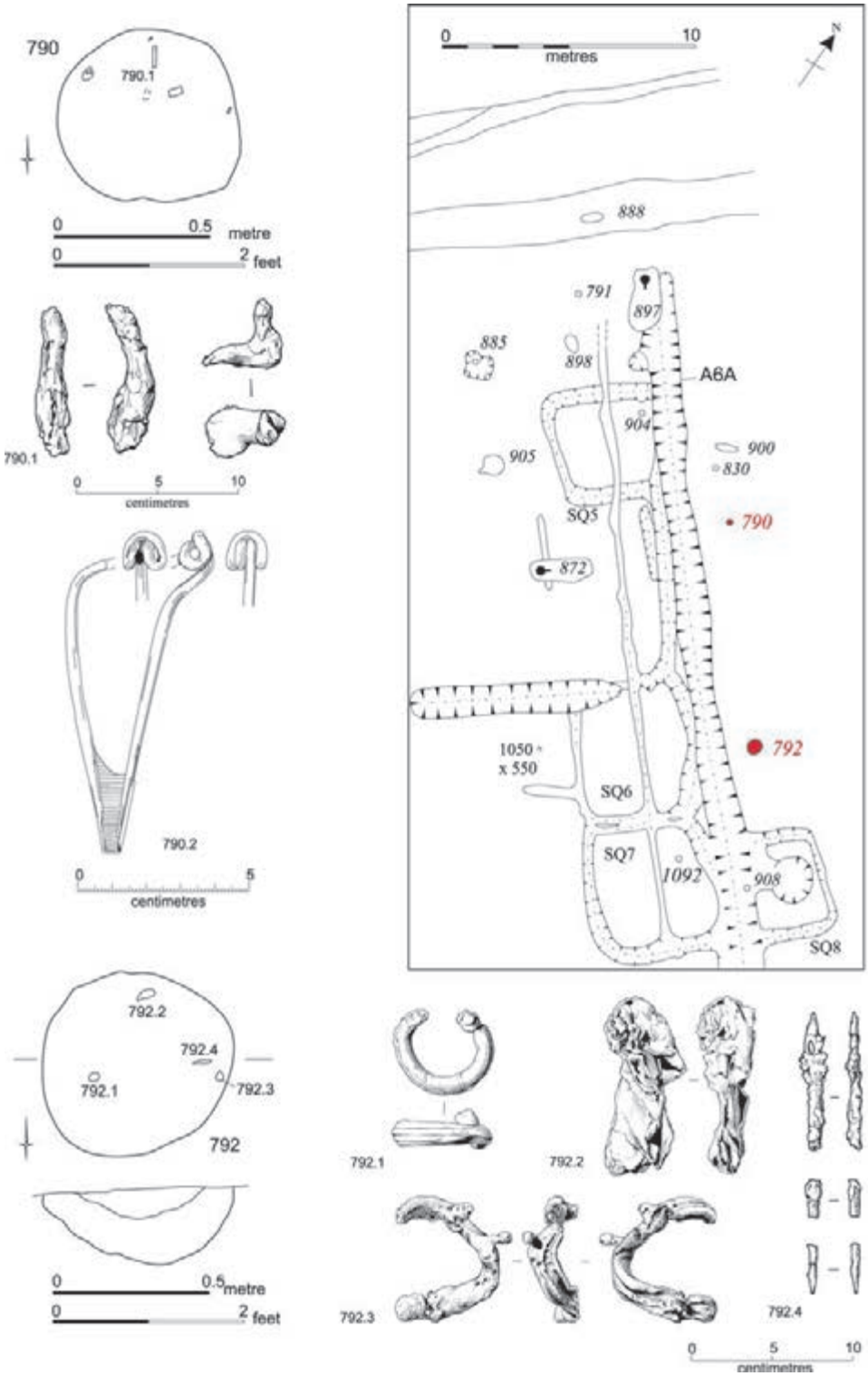


Figure 4.77. Square Barrows 5–8, with plan and grave goods, Cremations 790 and 792.

The remaining two cremations, 792 and 830, were located just west of the later A6A ditch and, together with Cremation 790, were aligned with it and, also, the preceding SQ5–7 axis (Fig. 4.77). Indeed, their situation would complement the central point of the single northern barrow, SQ8, and this – together with the character/content of Cremation 792 (see below) – could suggest their Iron Age attribution (note that only one Romano-British inhumation, No. 900, was located north of the A6A boundary):

Cremation 792 (1075N × 563E; Fig. 4.77) – Four individuals, including at least one male

Notebook 164.63

Grave pit: Circular, with sloping sides and rounded base, 0.61m in diameter, 0.23m deep.

Pit fill: Two distinct fills: a lower with cremated bone and oak charcoal and 'bronze fragments throughout fill' (including a brooch or buckle); an upper 'sandy fill with some bones and charcoal'.

Grave goods: Four items of badly burnt metalwork were recovered from this cremation (Lab. Nos. 727032A–D).

792.1 Burnt and partially distorted open copper alloy ring. 'C'-shaped, the ends of the ring are broken, revealing a rounded cross-section. The exterior surface is decorated with three parallel ridges. Internal Diam. 18–20mm, Wt. 13g. A possible finger-ring; an almost identical example was found during excavation of the forum-basilica site at Silchester and identified as a harness-ring (Boon 2000, 345 and fig. 159.40). Similar sized rings have also been recovered from Camerton (Jackson 1990).

792.2 Collection of very fragmentary burnt copper alloy sheet, thin-walled vessel or appliqué decoration (Wt. 66g). The fragments varying from melted rounded blobs to surviving distorted lumps. The largest piece is extremely distorted and folded or crumpled (heat distortion?), Wt. 15g, L. 53.5mm and is less than 1mm thick.

792.3 Heavily burnt, partially melted and twisted and distorted 'C'-shaped copper alloy bar. Probably with an original 'D'-shaped cross-section with a central mid-rib and channels, this item may be a heavy buckle or harness fitting. There has been considerable mineral loss and the surface is heavily pitted. Internal Diam. 22mm, Wt. 15g.

792.4 Three iron fragments. The larger fragment is the head and part of the shank (Diam. 4mm) of a needle, L. 42mm, Wt. 1g. The head (22 × 7mm) is flattened, tapers to a point and is pierced, the opening measuring *c.* 6mm. This type and size of needle is typical of those used for leather-working. The two smaller fragments refit, with a total length of 26mm, weight 1g, and taper to a thin point. These three fragments are probably from the same object as each is similarly degraded and corroded; possibly made of copper alloy.

Bone: Scattered throughout grave pit, 'some bones quite large', was 2450g of bone representing 'at least four individuals, one is male'. Poor preservation, complete burning, white/grey in colour, Max L. 73mm.

Cremation 830 (1088N × 530E) – Adult

Notebook 209.61

Grave pit: Circular in plan, 0.3m in diameter and 0.10m deep.

Pit fill: No data. Oak charcoal recorded as found. Perhaps from fill.

Grave goods:

830.1 Unspecified copper alloy fragment.

Bone: Poor preservation, complete burning, white in colour, 210g, Max L. 18mm.

The other cremations within the immediate vicinity – 791, 885, 898 and 905 – all had accompanying grave-goods and were of definite Romano-British date, with the same attribution also extended to Cremation 908 on the grounds that it was cut into a later ditch (A6A; see Fig. 4.77).

As was the case with the northern barrow group, were all of the pre-Roman interments described above true cremations? A cremation burial implies a certain formality to the burial of cremated remains (and more than a token amount of cremated bone being present). Such bone is usually deliberately selected from the pyre, and its burial should properly be distinguished from the less formal burial or redeposition of pyre debris (often characterised by the inclusion of charcoal and other fuel ash). Cremations 790 and 792 are somewhat unusual in that they incorporate both charcoal and substantial amounts of cremated human bone, as well as what might best be characterised as 'pyre goods' (i.e. burnt grave-goods). At 1000g, the weight of cremated bone in Cremation 790 is substantial. While the large oak charcoal fragments intermixed with the cremated bone suggest a none too selective treatment of the pyre prior to burial, it is worth noting that this burial was provided with grave-goods in the form of an iron latch-lifter and La Tène brooch.

Cremation 792, as well as having oak charcoal and burnt copper alloy pyre goods (possibly buckles or harness fittings, plus an iron needle), contained 2450g of human bone representing at least four individuals, of which at least one is male. Could this 'cremation' actually represent the redeposition of a substantial amount of pyre debris? Both Cremation 790 and 792 were a similar size and shape – unelaborated circular pits with sloping sides and rounded bases. Might their functions have been the same?

Other components contributed to The Plaza's arrangement.[45] A major element was a rectangular array of post-lines. As shown on Figure 4.78, these enclosed an area of 25 × 74m (1850sqm). There is no escaping the fact that its dating and function cannot be entirely resolved, nor is its 'fit' with the square barrows perfect; its southern line seemingly cut through their centres, whereas in the north the post-line lay some 12m south of SQ1–4. Nevertheless, this 'marked ground' seems special and surely must have interrelated with the barrows. Certainly, it would relate to something more significant than just the garden/horticulture plots that it was shown as delineating in the site's Roman landscape reconstruction (see Fig. 6.29). The southern line of square barrows and the fence-line cutting it marked the northern side of an Early Roman cemetery (No. II; see Roman vol.), further suggesting its 'special' character. Apart from the roundhouses described below – and whose locations seemed to closely relate to that of the fenced plot – no other Iron Age or Roman structures occurred within it

and it would, therefore, seem to have served as some manner of long-lived 'reserved' space.

To facilitate reference we have designated the rectangle's individual side-lengths as Fence-lines/'FL' 1–5 (the eastern side apparently being reset; Figs. 4.78–9). While generally consisting of postholes *c.* 0.15–0.6m in diameter and 0.2–0.3m deep, there seems to have been considerable variability in their setting and interval. Those along its southern and western sides (FL1/[15063] and FL2/[4200] respectively) were bedded within narrow troughs; where their posts were distinguished, these were very closely set, being continuous or otherwise only up to *c.* 0.2m apart. In contrast, the north alignment (FL3/mc 15048) was more widely spaced at *c.* 0.5–1.0m intervals. The main east-side line (FL4/mc 15048 *et al.*) showed considered variability along its length. Also 'un-trenched', its posts were tightly set over its southern end, either side by side or up to *c.* 0.50m apart. Its northern two-thirds demonstrated greater complexity and, possibly, reworking. There, for the most part, they were oblong packing/setting pits, with up to two or even three postholes identified in some and, at one point, a continuous – if highly irregular – bedding trench extended over some 5.5m. While the distinction of this alignment was not itself continuous, generally the posts were closely set, with up to *c.* 0.5m between them. A second alignment (FL5/mc 15608), much less densely set and consequentially less well-defined, lay 0.75–1.5m east of FL4. While there were individual postholes, it generally consisted of larger pits (*c.* 0.35–0.6m dia.; 0.3–0.35m deep) and, though more closely set at some points (*c.* 0.5m interval), for the most part these were more widely spaced (*c.* 1.5–2.1m).

There is no avoiding the ambiguous status of these settings. On the one hand, the arrangement of their internal 'geometry' was somewhat irregular. Only the corners of FL1 and FL5 seem to have corresponded with each other; the northern end of FL4/5 extended beyond FL3's line, just as FL1 ran for some metres beyond FL2's return. On the other hand, nor do they appear to have continued beyond the boundaries of the Roman Double Ditch Enclosure. Two other broadly comparable post-setting troughs were distinguished within the latter's southern interior ([4432] and north end of [4390]); *Atlas*, Sheet 11); these, though, were short lengths and not on the same scale as The Plaza's main arrays. Their dating evidence is sparse and, consequentially, uncertain. While probably relating to extracting and/or resetting of their posts, some Early Roman material was recovered from the eastern line (FL4 & 5). On the whole, it seems reasonable to assign them a Conquest Period date.

Other components to consider are the relationships of the fence-lines with three roundhouses, whose entrances seemed to open flush onto the axes of FL2 and FL4/5 (Fig. 4.78).[46] Although opening onto the projected line of FL2 (its trough not actually surviving that far to the north), Roundhouse 77 was certainly of Iron Age date, with Brudenell assigning its assemblage of more than 190 sherds to the 'earlier' Middle Iron Age. It is therefore likely that its relationship with FL2 was probably coincidental. The same, though, cannot be true of the buildings along the eastern side of the fenced rectangle. Roundhouse 71 is unequivocally of Early Roman attribution (early–mid second century AD) as it cuts FL4's axis. Yet, the round building it replaced, Roundhouse 73, apparently produced no datable finds and it could, therefore, have been Late Iron Age/Conquest Period. The attribution of the directly matching roundhouse immediately to the south, Roundhouse 68, is similarly relative (Fig. 4.78–9). A small, seemingly square-plan gully-built structure (RB Str. 8) that apparently truncated it had a few Romano-British grey ware sherds, but Roundhouse 68 itself just yielded small fragments of flint-gritted pottery (i.e. 'prehistoric'). While possibly earlier, based on its spatial relationships its attribution is thought likely to match that of Roundhouse 73.

It should not be surprising to learn that there is a degree of ambiguity concerning the relations of the fence-settings to the area's Romano-British features. While Ditch A6A appears to cut across its eastern and western sides, the northern terminal of the boundary along the east side of RB Cemetery II would seem to respect FL1's line (Fig. 4.78). It nonetheless remains reasonable to assign the fence-line settings to the Conquest Period and, probably with them, Roundhouses 68 and 73. There is no particular basis to accredit these buildings with any special status. They do not suggest any kind of ritual/shrine usage, but then nor would their succeeding Early Roman buildings, Roundhouse 71 and (RB) Structure 8 (that said, the latter's square beam-slot build does seem quite different). Leaving the role of these various buildings aside and, instead, concentrating of the spatial interrelationship of the fence-line rectangle to the square barrow arrays, the most credible interpretation for it is still as some manner of ceremonial ground.

Its northern side would have been further framed by the Granary Row posters (Fig. 4.81). Already fully described (see *Rectangular Post Structures* above), these do not require further detailing. What does, though, are a series of other potentially related components, including a most unusual pit containing Cremation 868. Located in a near central position along Granary Row (and possibly truncating one of its poster-settings), this pit is an extraordinary feature, of similar proportions to a very large grave or small *Grubenhaus*. It was approximately 3.0m across and 4.3m long. Its upper profile was splayed, reducing to an area of 2.15 × 3.6m, from where its sides

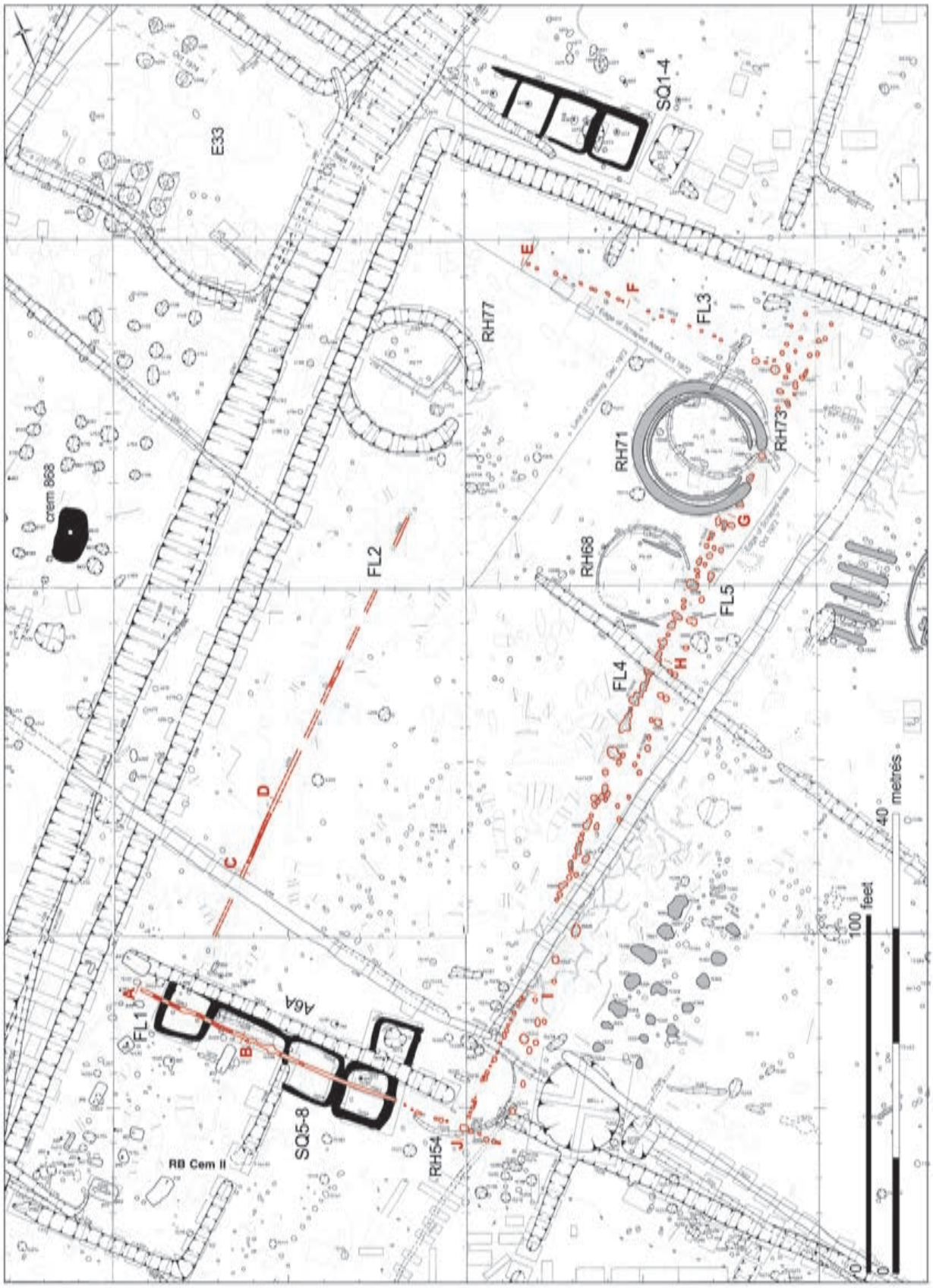


Figure 4.78. The Plaza, plan of Fence-lines 1–5 (and square barrows).

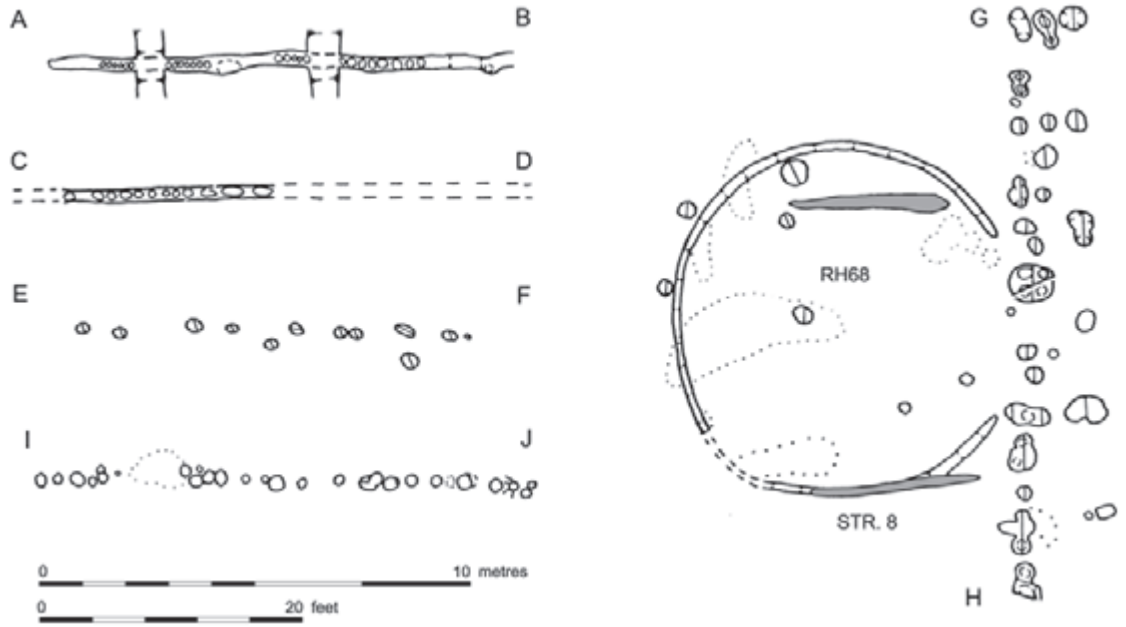


Figure 4.79. Selected detailed fence-line lengths (and RH68).

dropped steeply to a flat base, *c.* 0.85m deep. Its fills are described on Figure 4.80's section drawing and the accompanying plan indicates that its main fills included a Belgic Brick and a slag fragment, and at least 13 sherds of pottery. Both the manner in which the feature was excavated (i.e. in quadrants) and that the accompanying sketches indicate a possible stakehole-line and refer to collapsed wall deposits, clearly shows that, at first, its excavators thought they were digging a *Grubenhaus* (the plans refer to 'Hut [?]'). Yet, this changed when they encountered a cremation pit (*c.* 0.45m diam. and 0.3m deep) in its dead-centre and inserted into its mid-profile fills. Much burnt bone was present, with skull fragments separately labelled and the remains were identified as those of a mature male. Much charcoal was also recovered, with hazel, poplar and oak present.

The annotated plan indicates that pieces of the skull occurred beyond the confines of the cremation pit proper upon the feature's lower fills. At this level, part of iron brooch was also recovered: a La Tène D2 wire brooch (see Haselgrove, Chap. 5, No. 5). Dated to the second and third quarters of the first century BC, although the feature's pottery was never itself attributed,[47] in its notes Margaret Jones clearly labelled the feature as a 'grave' and of 'Pre. (Non-Saxon)' date (i.e. prehistoric). On the basis that she knew the local pottery well, we can therefore assume that the brooch probably reflects its true dating (i.e. later/Late Iron Age). Admittedly, this would seem an unparalleled interment rite for the period, but nor do cremations occur *within* the fills of *Grubenhäuser*. It may well have been the case that the pit and its mid-fill cremation had nothing to do with each other, but equally the former may have originally held an inhumation whose skeleton was later cremated.

This burial is likely to relate to another cremation – Number 865 – which lay nearby and adjacent to the large six-poster (No. 50; see Figs. 4.81 & 4.83); unfortunately, though, no details are available for it. Some 5m south of 868's cremation-pit, another large pit, *c.* 2.5m across and 1.2m deep ([4276]; Fig. 4.81), also yielded a brooch: a flat-bow wire type of mid first-century BC to mid first-century AD date (see Haselgrove, Chap. 5, No. 15). The pit, also excavated in quadrants, was assigned to the Late Iron Age. Recovered from it were pieces of fired clay, residual flint and several sherds of pottery (including rim and base sherds), plus a loomweight. Its fill sequence included a charcoal layer, burnt pebbles, with large pebbles and sherds from a 'Belgic' storage jar apparently deposited in its base (no burnt bone was recorded from it).

Attention should also be drawn to the fact that three other, comparably dated brooches occurred – evidently in residual context – within the Double Ditch Enclosure's northern boundaries (see Haselgrove Chap. 5, Nos. 15, 17 & 35). Moreover, as indicated on Figure 4.4 and attesting to Late Iron Age activity generally, relatively large quantities of Late Iron Age pottery were also caught within that enclosure's fills.

The occurrence of cremations within the northern Plaza/Granary Row-area is surely important. It resonates with the long-standing alternative interpretation of such would-be raised granary settings as possibly exposure platforms (see e.g. Carr 2007).

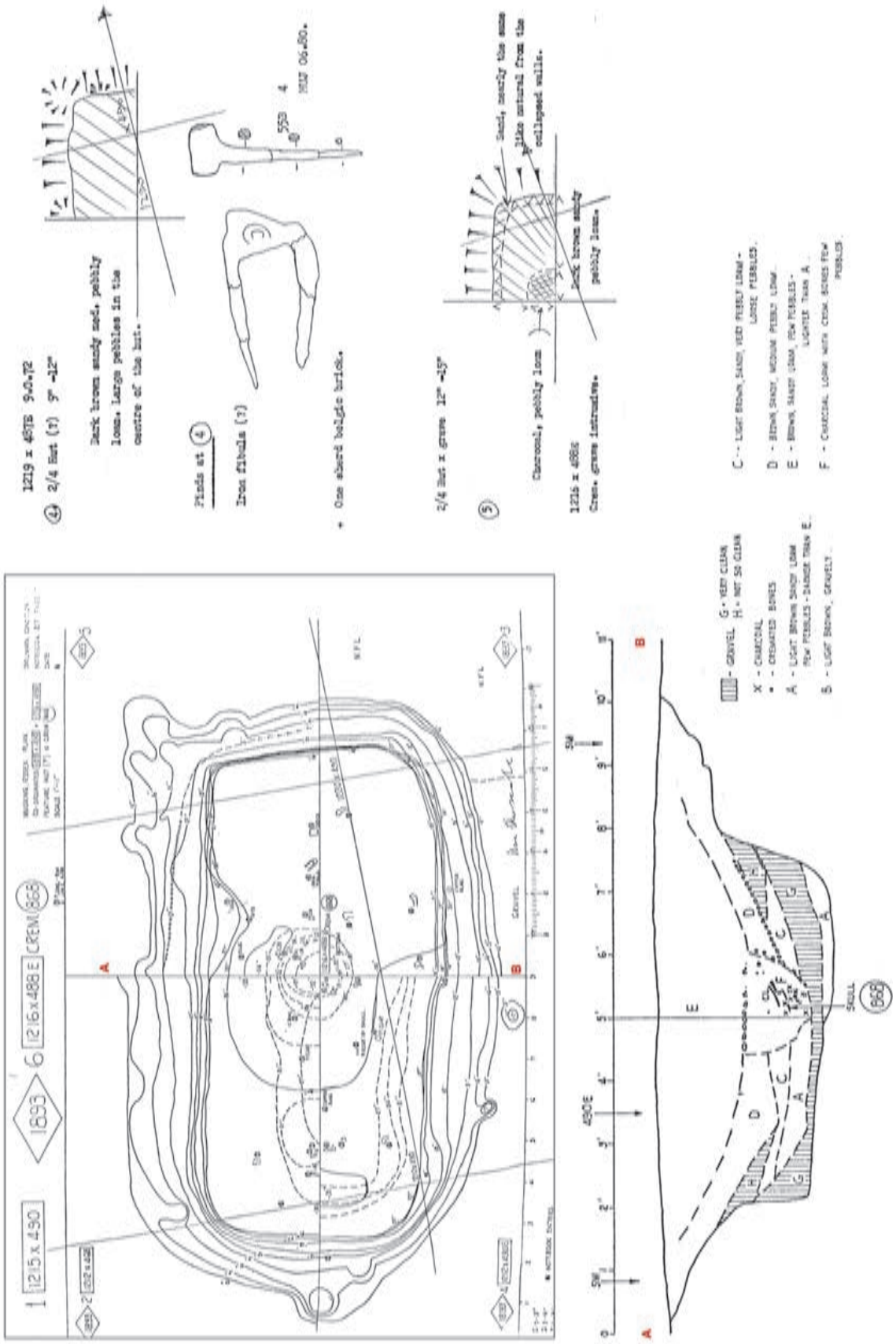


Figure 4.80. Cremation 868 (see Figs. 4.78, 4.81 & 4.83 for location).

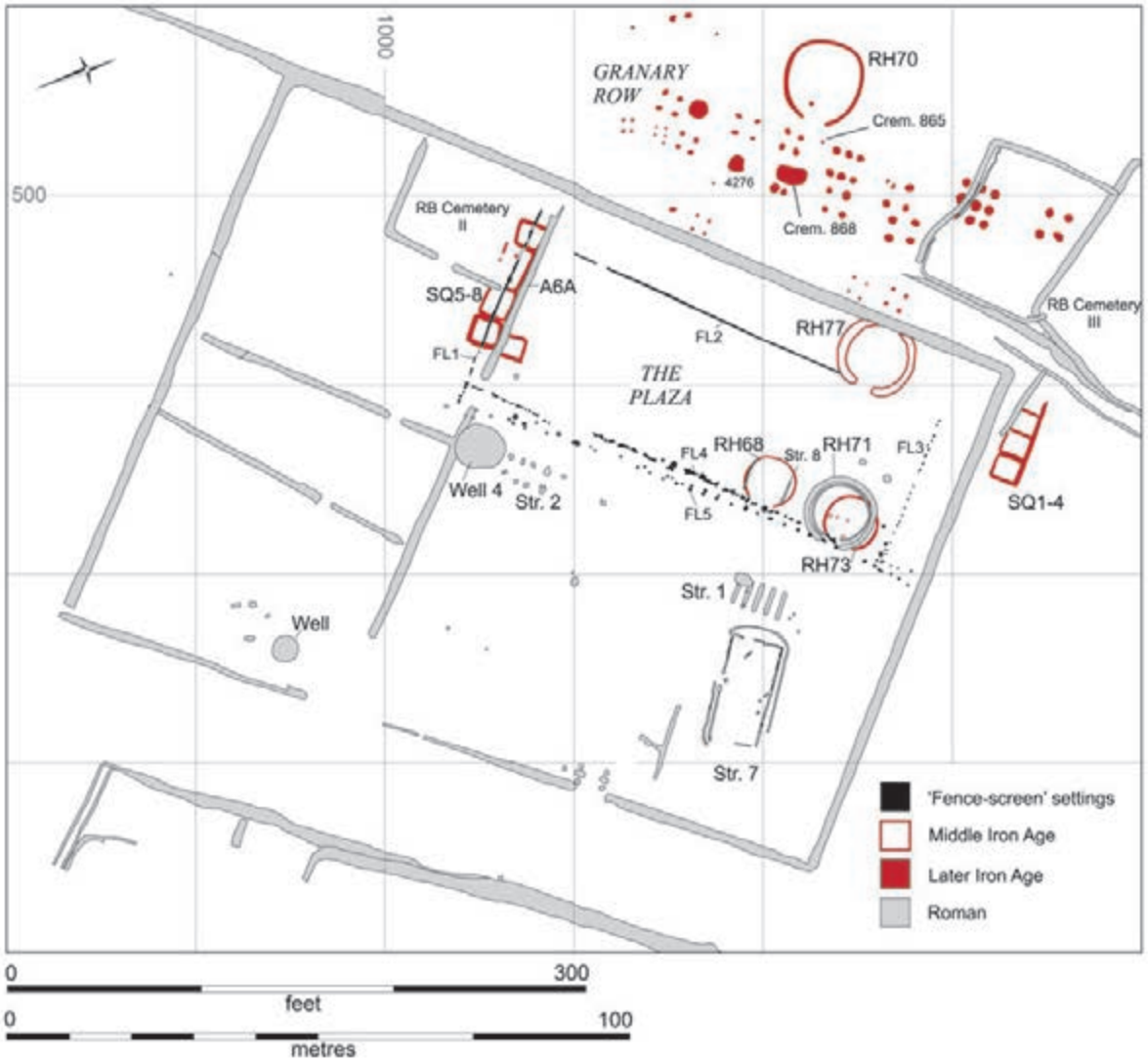


Figure 4.81. The Plaza (and Granary Row), phasing and interpretative plan.

As further outlined in Chapter Five's *Discussion*, on the near-Continent 'poster-settings' of comparable plan and mortuary houses feature in Late Iron Age cemeteries (see Fig. 5.39). This is not for a moment to say that Mucking's posters were primarily cremation-related, but that there may have been an association and, perhaps, that disused granaries sometimes served as pyre sites (hence, perhaps, the intense burning associated with some in the Row).

There is one final 'twist' to all this. Lying immediately north of Granary Row, the doorway of Roundhouse 70 directly faced Cremation 868's pit (Figs. 4.81 & 4.83). As outlined in the *Roundhouses* section above, this had a 'signature' build-type, as its eavesgully elongated along its doorway-aspect to accommodate its porch. Amid Mucking's many roundhouses, there was only one other building of this distinct type: Roundhouse 67, the central/main building within the Banjo's 'C' (Enclosure 11).

Certainly, there are inconsistencies in the precise chronology of some of these associations and Brudenell, for example, dates Roundhouse 70 to the Middle Iron Age; but this attribution is based on a small assemblage. Such details aside, what we have been able to establish is an associative linkage running from The Plaza's components west to include Granary Row's granaries (and subsequent cremations), Roundhouse 70 and the Banjo's main compounds (and RH67), and which spanned the later/Late Iron Age through to the Conquest Period.

Other Components

Having now outlined the sequences of both the main enclosures and The Plaza, this section deals with other features that may be relevant to this period (Fig. 4.82). While their excavation was of variable standard and most have little available dating evidence to positively

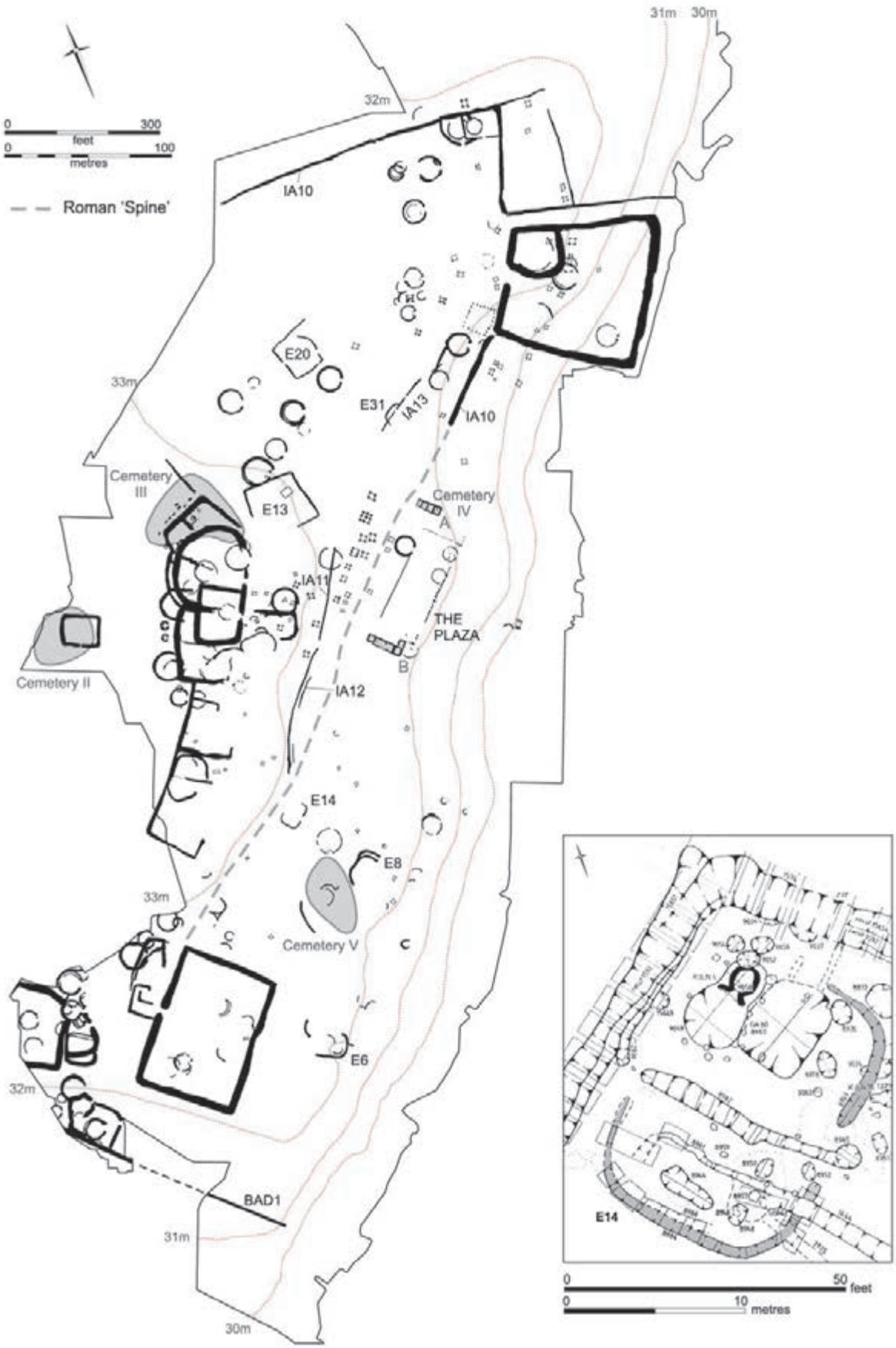


Figure 4.82. Conquest Period, enclosure and cemetery designations, and base-plan of Enclosure 14.

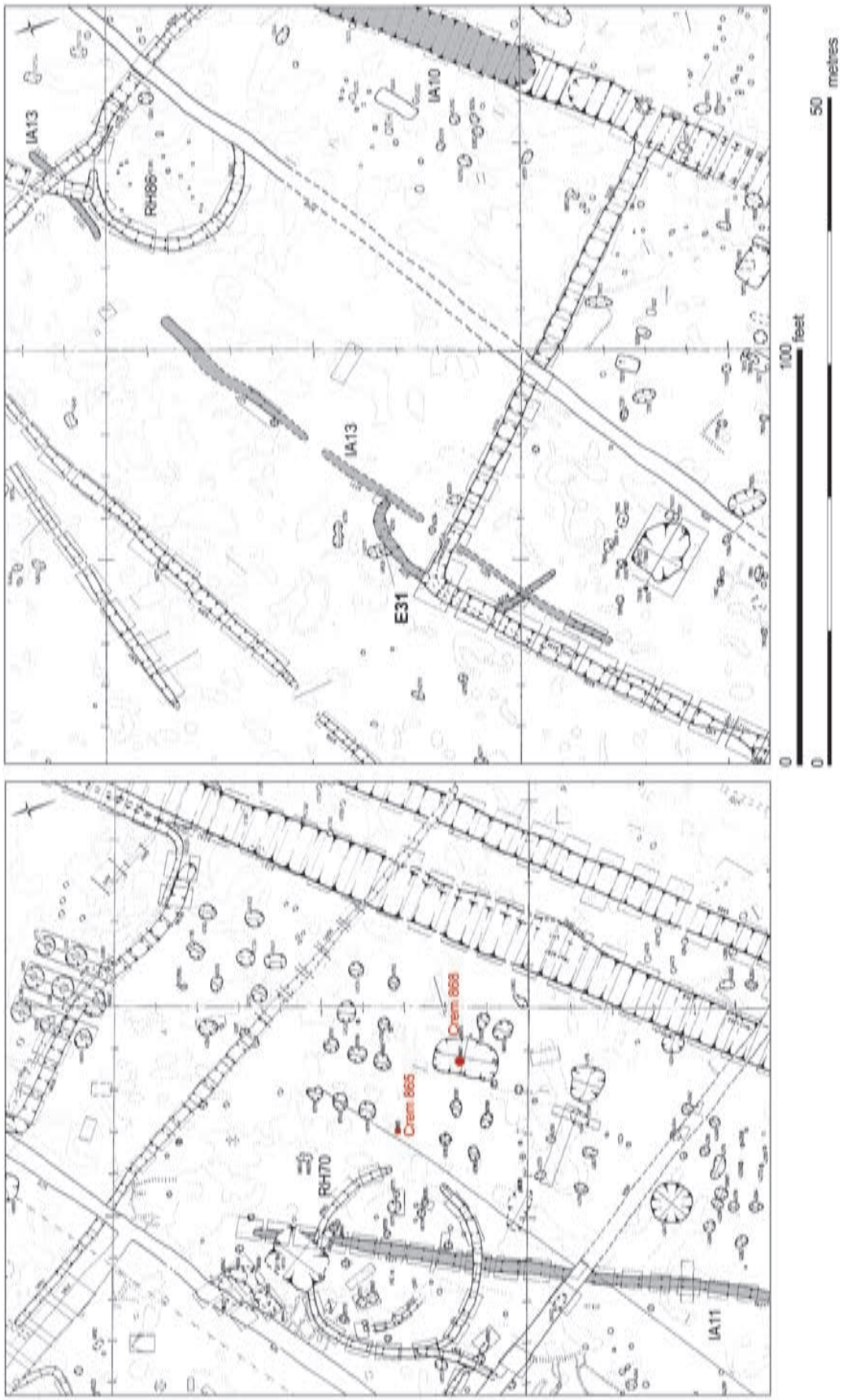


Figure 4.83. Iron Age boundary system and Enclosure 31 (plus Atlas-rendering of Granary Row).

ascribe them, they generally appear to relate to the Iron Age, rather than the Post-Conquest landscape.

As shown on Figure 4.2, a major ditch-boundary, running south/southwest–north/northeast across the middle of the site, was consistently assigned to the site's Iron Age (it also appeared, though, on MPX's 'Uncertain' phase-plan, Fig. 1.19). Its line appeared to bound the western side of the Granary Row posters, where it was also subsequently truncated by Roundhouse 70 (Figs. 4.82–3). Its layout varied, with its north and south lengths interrupted by a 5.0m-wide entranceway. While the northern portion (IA11; [4236]) ran largely straight, the southern part (IA12; [865]) arced slightly and, at two points, somewhat more minor, parallel ditch-lines ran along its eastern side. Though conceivably marking a drove/roadway, the *c.* 2.0m-wide interval between them and the main IA12 boundary seems too narrow for that purpose and they may instead have delineated an embankment.

Some 75m north of IA11 a seemingly matching boundary continued – albeit interrupted at three points – for 55m (IA13; Figs. 4.82–3). Its alignment, and especially the northernmost segment, arced slightly eastward and, if projected, would have been sympathetic with the southwestern corner of the North Enclosure. The northern portion of IA13 was truncated by the ditch linking Roundhouses 86 and 89 (and also by Enclosure 32); it, itself, truncated a small eastward-opening curvilinear enclosure (No. 31; Fig. 4.83). (It is in fact possible that, albeit again interrupted, the IA13 boundary continued still further north and related to the short 11563 trough-length shown on Figure 4.49; in which case, this collective ditch-line might have pre-dated the North Enclosure.)

The southern end of the IA12 boundary stopped just short of Enclosure 14. The assignment of this round-cornered rectangular gully-setting (*c.* 11 × 14m) to the Iron Age is far from certain (Figs. 4.8 & 4.82). Indeed, originally it was thought to define some manner of windbreak-screen relating to the Romano-British kiln within its northwestern corner. Eventually though, this interpretation was dismissed due to the quantity of La Tène-decorated pottery recovered at this point (plus also Late Iron Age wares; see Fig. 4.4) and that it was truncated by a primary Roman-phase boundary ([1444]; see Fig. 4.82, inset). Given its plan-form, two interpretations seem possible. First, it may have delineated a rectangular building or, second, that it was a 'square barrow', whose probable surface-lain cremation burials had been removed. It may be relevant to the latter possibility that a coil fragment from a bronze brooch came from a Roman-phase ditch cutting the enclosure's interior (i.e. ?residual context; see Haselgrove, Chap. 5, No. 53) and another brooch fragment was found nearby ('?fibula pin'; see Fig. 5.23). This is certainly a most intriguing and distinct setting.

It should be stressed that the arrangement of ditches IA11–13 – effectively running from Enclosure 14 to adjacent to the southwestern corner of the North Enclosure (Fig. 4.82) and probably the precursor of the main later Iron Age/Roman IA10/RB6 'spine boundary' – was broadly sympathetic to the orientation of both the Banjo complex and the alignment of roundhouses north of it. It would, thereby, have delineated the site's main settlement swathe from The Plaza and Granary Row, with its 'arc' near-symmetrical to them (the *c.* 75m-wide gap between the IA11 and IA13 lengths suggests that perhaps something has gone unrecorded there).

In the same part of the site as Enclosure 14, the assignment of Enclosure 8 to this period cannot be based on any significant 'positive' dating evidence (Fig. 4.8 and see, also, Fig. 4.84). Though MPX-attributed Middle Iron Age pottery is indicated from the vicinity (Fig. 4.3) and an early Colchester series copper alloy unit-coin was apparently recovered from it (see Haselgrove, Chap. 5, No. 12) – as well as lying in an area with a minor clustering of triangular loomweights and Belgic Bricks (see Fig. 5.16) – the enclosure simultaneously appears on both the MPX's Iron Age and 'Uncertain' phase-plans (Figs. 1.19 & 4.2). Its attribution here is essentially based on its curvilinear plan and that it was obviously truncated by the area's main Roman ditch system (see Fig. 4.8); notice that its plan and orientation is similar to that of Enclosure 7 within the southern end of the Banjo complex (see Fig. 4.62).

East of the South Rings, at the southern end of the site (Fig. 4.82), the status of Enclosure 6 is even more ambiguous and cannot really be established. As shown on *Atlas* Sheet 7 (200–300N/400–500E), it consisted of two curvilinear ditch lengths, the eastern of which ([747]) appears to have encircled the eavesgully-arc of Roundhouse 11. Based apparently on a handful of sherds, the latter was attributed by MPX to the Late Bronze–Early Iron Age, but by its type-morphology this is considered an unlikely date. Given the scale and form of the enclosure ditches, a Middle Iron Age date seems more probable. Yet, as shown in the *Atlas*, the enclosure's eastern arm ([747]) seems completely entangled within the Romano-British ditch sequence, and is shown both cutting and cut by rectilinear boundaries. In short, given the available evidence, it makes no sense whatsoever.

Also falling with the area of Enclosure 6, Roundhouse 12 was apparently of Roman date, as is Roundhouse 111 northwest of it. Located beside the latter, the features of another roundhouse [1666] were only recorded in plan, and the archaeology in the immediate area was obviously hastily dug, with swathes bordering them marked variously 'Not Investigated' or 'Roughly Excavated' (see *Atla*s Sheet 7; 360N/540E). A number of other, partial 'gully-arcs' are suggested there, but with their buildings 'unrealised' (e.g. F.13357 & F.1170). Similarly, other unattributed small enclosure-scale curvilinear ditch lengths also occurred across the variably investigated ground between Enclosures 6 and 8: F.1223 (410N/500E) and [1552] (530N/400E).

Of the four brooches recovered from this area to the east of RBI (see Haselgrove, Chap. 5, Nos. 30, 31, 42 & 51), one is an iron spring fragment, another a Hod Hill, with two being Colchester derivatives; from this same area was recovered a catchplate fragment (Cat. No. 195; see Figs. 5.9 [iii] and 5.23).

Cemetery V

This cemetery was situated across an area of about 30 × 30m in the south-centre of the site, some 40m to the southwest of Anglo-Saxon Cemetery II (Figs. 4.82 & 4.84). It included 37 unurned cremation

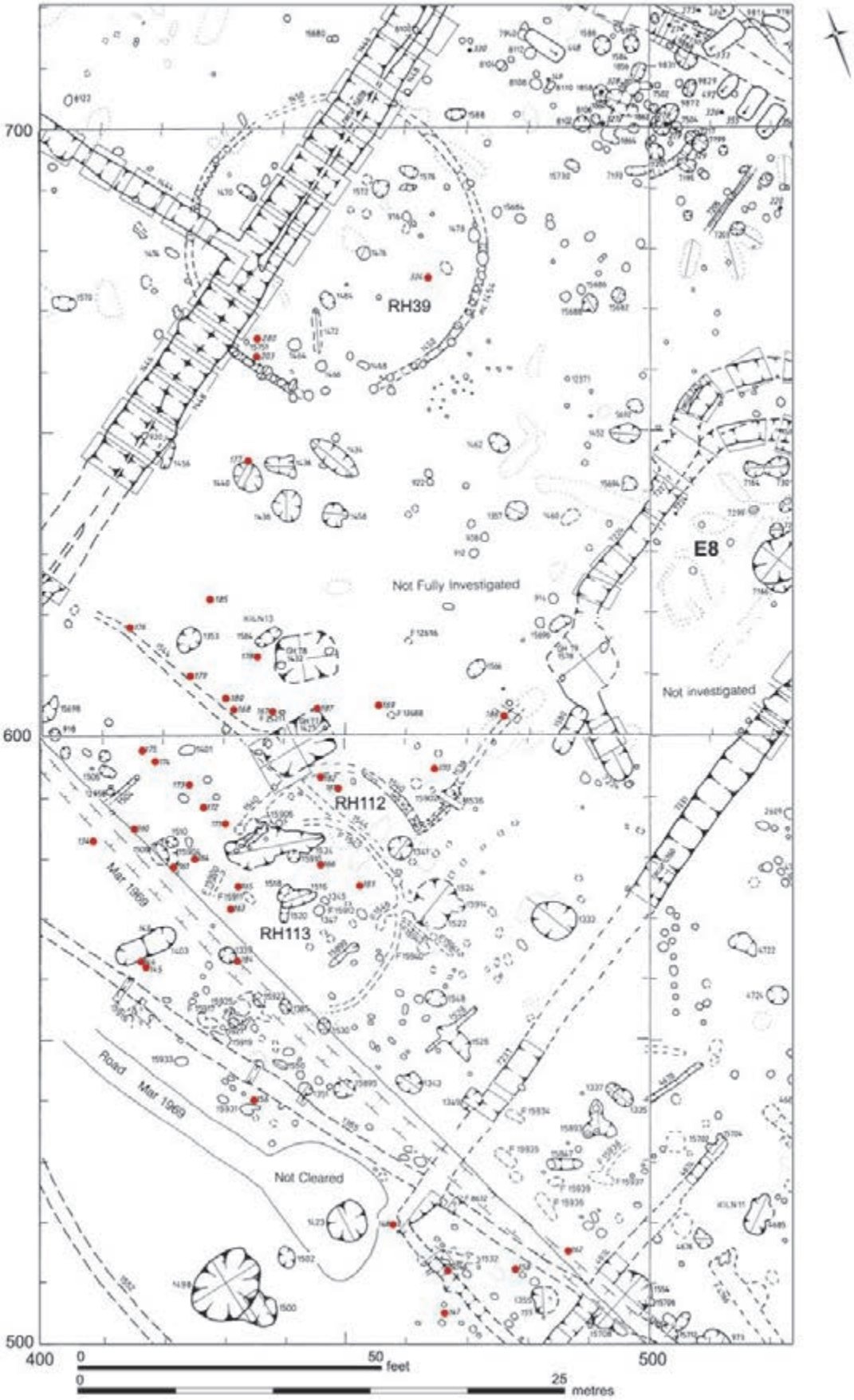


Figure 4.84. Cemetery V base-plan (cremations indicated in red).

burials, most of which seemingly date to the Iron Age, although some were probably Early Roman.[48] While the cemetery lay adjacent to Enclosure 8 and its centre coincided with the footprint of Roundhouses 112 and 113, it was also an area with relatively dense Romano-British features and where *Grubenhäuser* occurred. Leaving aside four burials occurring within the vicinity of Roundhouse 39,[49] they lay in two main groupings: a 6 × 10m cluster of six in the southeast (Nos. 146–8, 155, 158 & 162), with the remainder extending over a 20 × 24m-swathe.

Clearly, the excavation conditions were not ideal. The area's plans indicate that parts could not be fully investigated, and a number of the interments were disturbed through machine-stripping. The investigation of some was evidently very summary; there are reported instances of the remains being 'left on mound by scraper' and there dug afterwards. With none of the cremations having definite grave-goods and with much of their bone apparently not reported upon, there would be nothing gained here by presenting them in a full gazetteer-format and, instead, the results will simply be tabulated (Table 4.5). Drawing upon the records of Notebooks 74, 75, 80 and 82, this text is now, though, part of the project's archives.

Without exception, all of the cemetery's cremations were deposited unurned within small pits. These were usually circular, under half a metre across and rarely more than 20cm deep. Only one, Cremation 146, contained more than one fill. There is no evidence of grave markers, and the fact that some cremations were cut by Romano-British features suggests either that their locations quickly became unknown or that they ceased to have any significance.

The cremations were almost all devoid of finds. Only 11 had any associated, and in two cases these were recovered from the surface, making their association doubtful. Eight cremations (including those with surface finds) were associated with pot sherds, of which four were of Iron Age or possible Iron Age attribution and four were Romano-British (in two cases from the surface of the cremation). No complete or substantially complete vessels were recovered. Four cremations contained fired clay (in one case of loomweight) and one had fire-blackened flints, presumably incorporated together with the pyre debris.

Lying isolated 7.0m north of the main cluster, while Cremation 177 was itself essentially nonedescript, recovered from the pit ([1440]) immediately beside it was a Colchester derivative brooch (see Haselgrove, Chap. 5, No. 32). Another brooch, a simple wire type (*ibid*., No. 19), came from pit [1438] beside that and, together, these must surely amount to 'special deposits'.[50]

Given the lack of detailed osteological data, it is only possible to offer general comments concerning the cemetery's cremation practices. Wood charcoal from three burials was identified to species (Nos. 158, 160 & 165), with different species involved in each case: oak from Cremation 158, field maple from 160 and hawthorn from 165. This may indicate either that pyre construction involved a mixture of species or, alternatively, that the species used varied over time according to what was considered to be appropriate or was available.

The fill of almost all the cremation burials consisted of a mixture of burnt bone and charcoal. The bone fragments were generally small, with only four graves having fragments over 1.5cm in size. This indicates one of three things. Firstly, that pyre temperatures were high and/or prolonged, leading the bone to become highly fragmented. Secondly, it may suggest that, if they were not directly pyre sites themselves, these pits were largely filled with pyre sweepings; either way, they may represent the remains of the cremation left over once larger bone fragments had been extracted. Thirdly, it is possible that machine-truncation of the cremations had removed the better part of their remains, leaving only the bases to be excavated. Certainly, the cemetery's severe stripping may well have been a contributory factor in the small size and low weight of the retrieved bones. This does not, however, rule out the possibility that other processes also contributed to the fragmentation of the cremated remains. Pits filled with pyre material are known from Stanway, Colchester, although at least some of these were of post-Conquest date (Crummy *et al.* 2007, 410, 426–7).

The dating for this cemetery relies on the very limited material recovered (i.e. a very few pot sherds) and the interrelationships of the cremations with cut features. Two contained Iron Age sherds (Nos. 178 & 179), whilst four were cut by later features (a Romano-British pit and a first-century AD ditch), suggesting that these must belong to the Iron Age. Possible Romano-British sherds were recovered from a further three cremations (Nos. 147, 164 & 172), which suggests that the cemetery continued in use into Roman times. Equally, the manner in which others were apparently arranged in relationship to the area's Early Roman ditch system – Cremations 146–8, 155, 158 & 162 in the east and, to the west, Cremations 167, 168, 172–6, 179 & 180 – would indicate their post-Iron Age affiliation and, generally, the cemetery is probably best considered of Late Iron Age/Conquest period date.

Numerous examples of Late Iron Age/Early Roman cremation cemeteries are known from Essex, including those from Stansted (Frere *et al.* 1989: 304), Hornchurch (Wright & Wilson 1963, 138) and Heybridge (Atkinson & Preston 1998). The cemetery's cremation burials would generally belong to the

Table 4.5. Cemetery V, cremations.

No.	Age	Shape	Length (m)	Width (m)	Depth (m)	Finds
134	Adult	Circular				
143		Circular?	0.31	0.31	0.14	
144		Circular		0.31	0.14	
145		Circular	0.46	0.46	0.18	
146		Circular	0.25	0.25	0.10	Two samian sherds
147		?				Two ?IA sherds, one ?RB pot rim, and a glass fragment at surface
148		Oval	0.43	0.30	0.20	
155		Truncated		0.31	0.09	
156		?		0.38	0.18	
158		?		0.36	0.15	
160	Adult	Circular	0.38	0.38	0.26	
161		Oval	0.43	0.38	0.28	
162		?		0.46	0.15	
163		?		0.33	0.15	
164	Adult	Circular	0.28	0.28	0.25	One ?RB sherd
165	Child (8–15) + adult?	?	0.69	0.46	0.08	
166	Child	Circular	0.48	0.43	0.20	
167		Circular	0.38	0.38	0.15	
168		Circular	0.38	0.38	0.15	
169		Circular	0.36	0.36	0.19	
170		Circular	0.30	0.30	0.18	
171		Circular	0.30	0.36	0.08	Four blackened flints
172		Circular	0.46	0.46	0.10	An ?RB sherd
173	Child (1–7)	?	0.41	0.30	0.15	Fired clay fragments
174		Circular	0.38	0.36	0.15	
175		Circular	0.38	0.38	0.15	
176		Circular	0.30	0.30	0.15	
178		Circular	0.41	0.41	0.13	An 'IA A or B' sherd
179		Oval	0.46	0.41	0.20	An 'IA A' sherds
180		Circular	0.36	0.36	0.13	
181		?	0.28	0.28	0.08	
182		?			0.08	
183		Circular	0.31	0.31	0.08	
184		?	0.26	0.26	0.15	Small fired clay fragment and IA sherds
185		?	?	0.46	0.10	
186		?	0.38	0.38	0.11	A fired clay piece and three sherds
187		Circular	0.28	0.26	0.15	Fired clay fragments and a RB glass fragment (surface)

Aylesford-Swarling tradition of the mid first century BC to first century AD. This usually involved burial within urns, often with brooches and other grave-goods (Collis 1977, 5; Cunliffe 2005, 560–1). However, not all such burials were accompanied in this way and Elms Farm, Heybridge provides a parallel for a cemetery with only unurned interments (Atkinson & Preston 1998, 84, fig. 6). There, 'cremation burial' pits occurred alongside a field boundary ditch, but which were apparently pyre-related (Sealey 2013, 52–3). Like these cremations from Mucking, those also included only sporadic finds of both Iron Age and Romanised material culture (see Chap. 5, Note 34).

The Conquest Period and Early Roman Landscape

Describing an almost fan-like arrangement involving the Banjo's late-phase compounds and Enclosure 13, the main components of the site's Latest Iron Age/Conquest Period usage have already been outlined. The only other significant component to add to this, aside from secondary activity at the RBI Enclosure, is the small sub-square Enclosure 20. Although relatively isolated some 60m north of Enclosure 13 (Fig. 4.82; see *Atlas* Sheet 16), it is assigned to this horizon based on plan-morphology and shared orientation. (While shown on the MPX Iron Age plan [Fig. 4.2], and with no Iron Age or Roman pottery

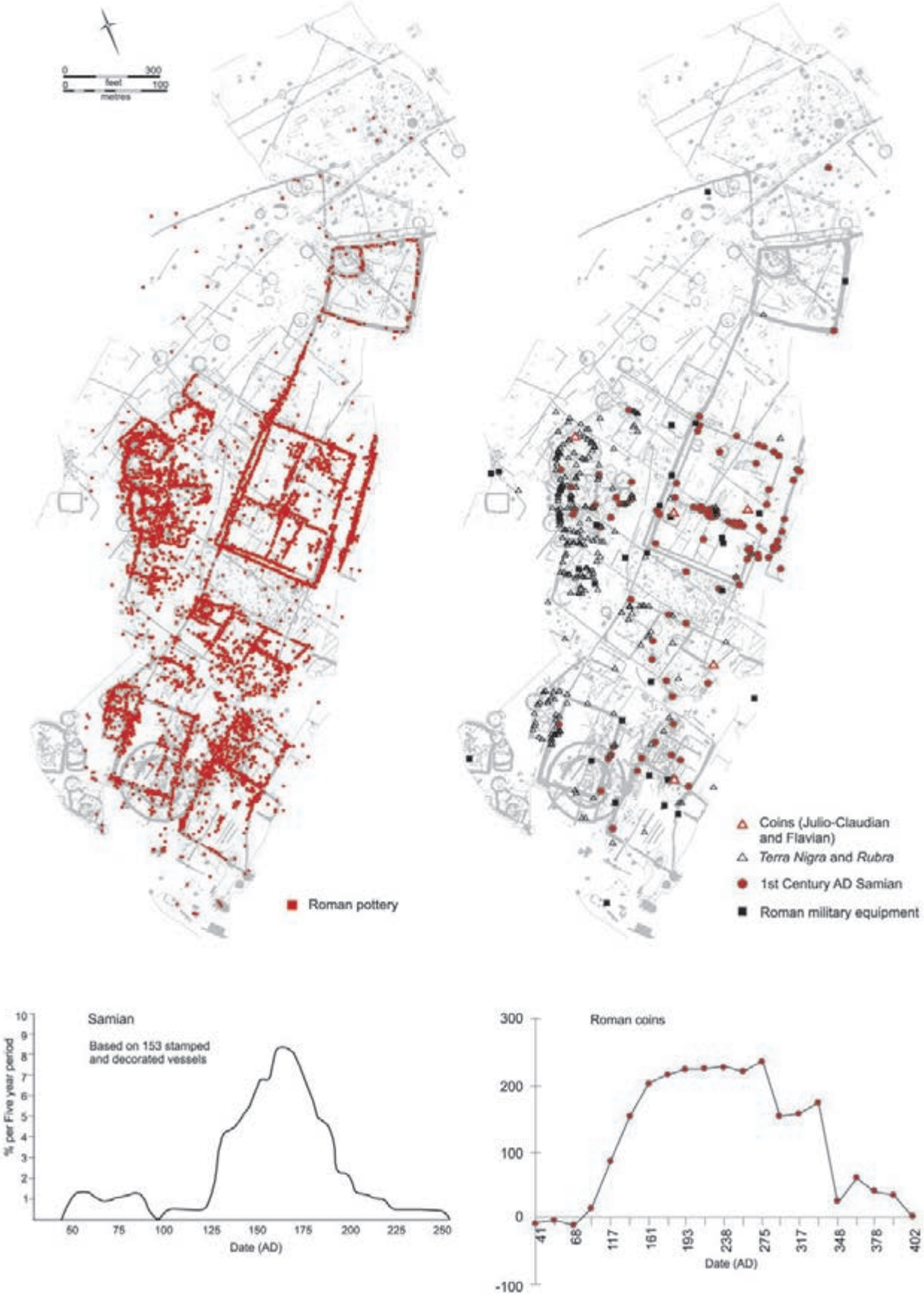


Figure 4.85. Distribution of Roman pottery (upper left) and, upper right, Roman military equipment, early coins and pottery types (first-century AD samian and Terra Nigra/Rubra*); below, samian- and coin-frequency plots.*

apparently indicated from it, probably reflecting a missing or incomplete computer catalogue file, its attribution is really just a guess.)

Before considering developments elsewhere, the manner in which the Early Roman paddocks and boundaries framed The Plaza will first be outlined. While more thoroughly presented in the Roman volume, this is not an easy task. As is expressed in the 1990s Roman reconstruction illustration (see Fig. 6.29), it was the Double Ditch Enclosure's second century 'rustic villa' setting that dominated the period's interpretation, and not the dynamics of what went before (notice on that figure how the Banjo-area is conveniently scrub-covered). As is evident on Figure 4.85, much of the pottery relating to the various enclosures was evidently not computer catalogued and may not even have been processed (see also the similar 'void swathe' north of Enclosure 13 on Fig. 4.4).[51] Accordingly, whatever phasing is possible has to be based on developmental structuring principles, rather than any 'hard' dating evidence (and even stratigraphic relations, as many of the crucial ones here seem unresolved).

In the centre of the site were a number of compounds adjacent to The Plaza, whose long axis was laid out parallel to and beside a major northwest–southeast oriented ditch boundary (RB1). A rectangular enclosure – Number 30 – evidently truncated the northeastern corner of Enclosure 13 (even though the actual relationship between the two was not established; Figs. 4.60, 4.66 & 4.86). Over its eastern end, the boundary was itself truncated by Enclosure 32, whose rectangle was subsequently extended southwestward with the addition of Enclosure 33 (Figs. 4.78 & 4.86). The latter truncated the northern end of the Granary Row posters, whereas the former later bounded the area of RB Cemetery III. Attention should be drawn to the fact that while Enclosures 32 and 33 were shown on the MPX Iron Age phase-plan, this seems an unlikely attribution on the grounds of their relationship to the extended-IA10 'long boundary' and, with it, Enclosure 30, which certainly did not seem to have been part of the pre-Roman landscape.

Running parallel beside the southeastern end of the RB1 boundary – and surely broadly contemporary with it – was a straight 25m-long ditch (RB2), whose southeastern end just clipped the corner of the northern square barrow array (see Figs. 4.73 & 4.75). To the south, a directly comparable ditch-length (RB3) clearly pre-dated the Double Ditch Enclosure. RB3 was also truncated by the southern boundary of the enclosure that later bounded RB Cemetery II, which itself connected to (and cut) the southern line of square barrows. While, therefore, Ditches RB2 and 3 did not have the same direct relationship to The Plaza and its barrows, their arrangement is still crucial, as RB3's relationship to the cemetery plot indicates that, together, these ditches framed the ceremonial/mortuary core-zone (Fig. 4.73).[52]

Roundhouse 71 and Structure 8 (see Fig. 4.78 & 4.81) would appear to have related to The Plaza's 'operation', with the latter, small sill-beam structure possibly being some manner of shrine (Fig. 4.79).

As shown on Figure 4.73, within the southern third of the Double Ditch Enclosure were a number of seemingly contemporary boundaries, whose two main northwest–southeast aligned lengths (RB4 & 5) appear to have been truncated by the Double Ditch system. These both appear on the EH/BM-phase Late Iron Age-feature sketch plan (see Fig. 4.5). While a Late Iron Age date remains possible, given what has now been established for this area's Conquest Period/Early Roman layout, they could just as easily be assigned to this horizon.[53] Yet, after long consideration neither of these assignations work, and both boundaries must have post-dated the Double Ditch system. Their cutting across its fills must have simply gone undetected (in the enclosure's southwestern corner a perpendicular ditch-line is shown truncating that system; Fig. 4.73). The sequence, otherwise, risks phasing absurdity, for the alignment of RB4/5 clearly matches that of the line of Anglo-Saxon buildings to the northeast (PHBs 10, 20 & 36; see Hamerow 1993). The archive files for the latter buildings have been thoroughly scrutinised to check whether they could be dated earlier. They cannot and their attribution is sound; therefore, unless willing to admit that a boundary alignment can re-emerge after a 400 year (+) interval that saw completely different alignments, then these ditches must be of Late Roman or later attribution.

As is also apparent on Figure 4.73, there was clearly a precursor to the western boundary of the Double Ditch Enclosure. Along its southern third, three parallel ditch-lines (RB6) ran obliquely between the double ditches and were truncated by them (the alignment of one seems to veer slightly and it may have continued southwards along the inner circuit's line). Based on their arrangement, it is reasonable to assume that at least one of these equates with the arcing ditch length that forms a earlier rounded version of the Double Ditch Enclosure's southwestern interior corner. From that point, it presumably continued as a precursor of the inner circuit's southern side (see Fig. 4.86).

The later truncated RB6 triple ditch-line must have continued northeastwards alongside the perimeters of Enclosure 32 and have connected with and re-cut the IA10 ditch at the North Enclosure's southwestern corner (Figs. 4.48, 4.49, 4.82 & 4.86).[54] The 'angle' described by the RB6 ditches matches the kinking that occurred in the line of what was to be the outer Double Ditch Enclosure boundary alongside Enclosure 32. At

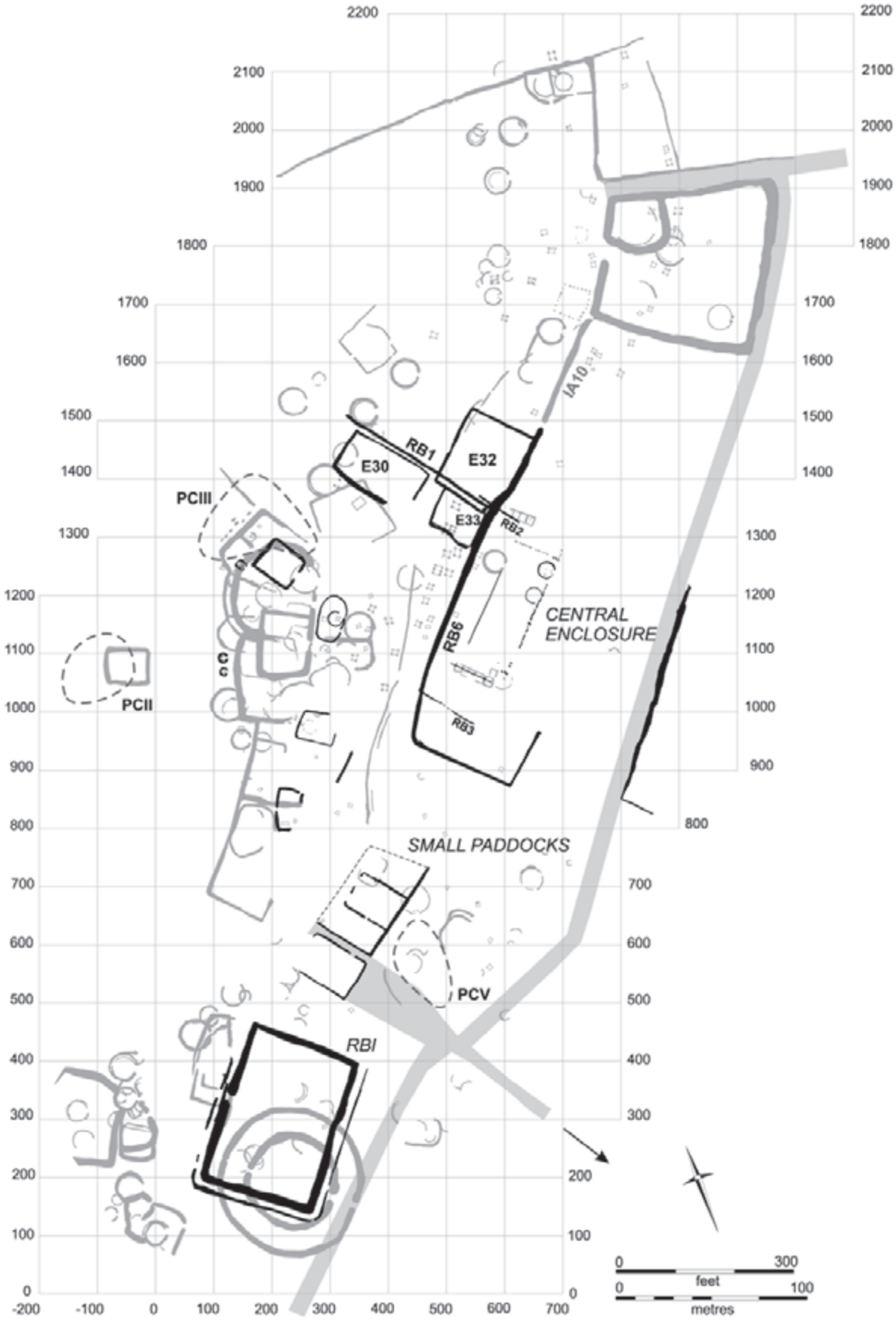


Figure 4.86. The Early Roman landscape (see Fig. 4.73 for other Romano-British ditch designations).

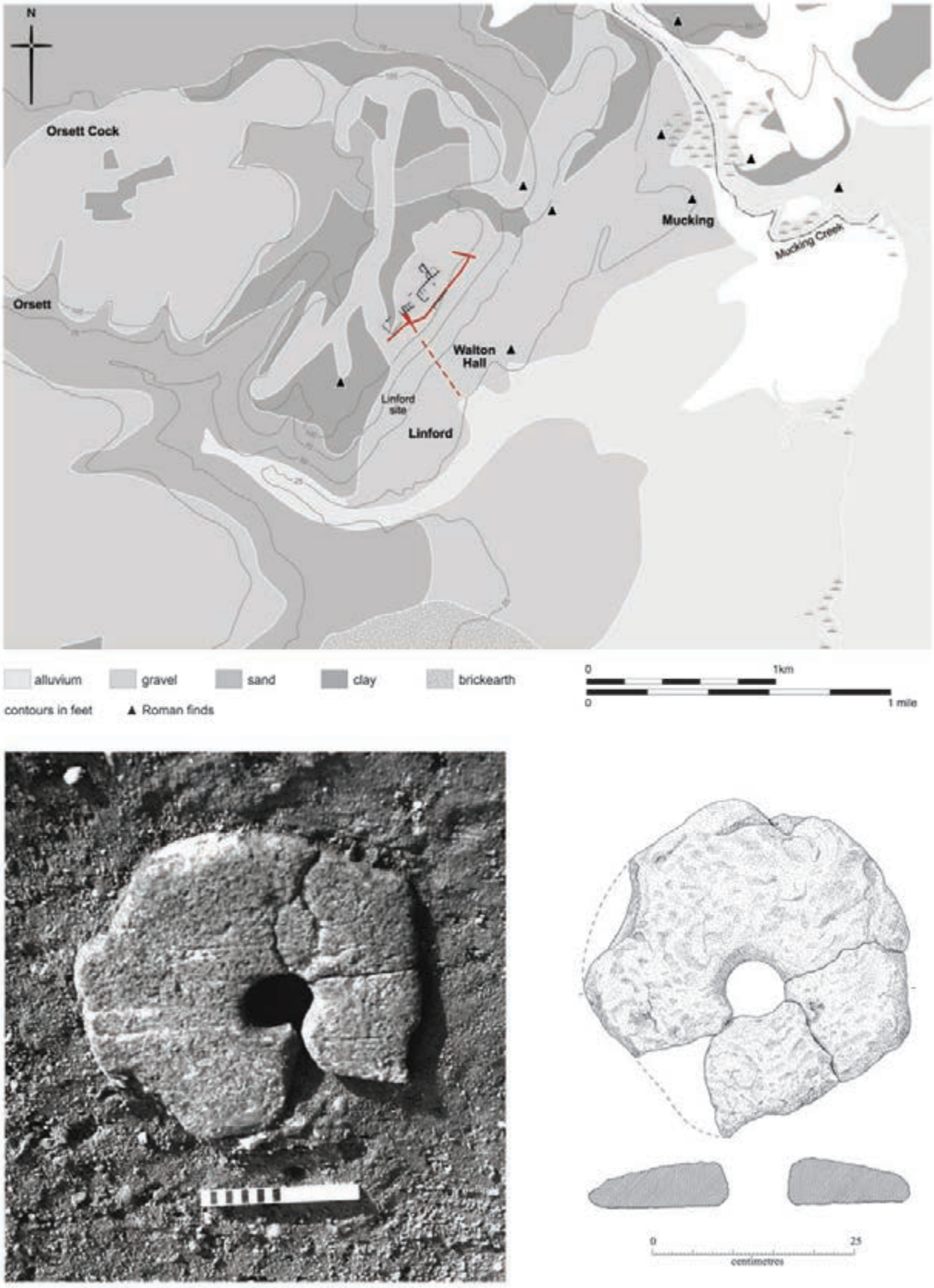


Figure 4.87. Early Roman Mucking, with trackway projection and possible quay location (after Hirst & Clark 2009, fig. 231); right, the quernstone possibly reworked as an anchor.

both ends, the kinking of this boundary appears to have occurred symmetrically in relationship to The Plaza and, more specifically, its two square barrow arrays: a stand-off suggesting 'respect'. (If this kinking had not occurred, the northward projection of IA10 would have directly correlated within the north side of the northern square barrow array.)

Figure 4.86 effectively cartoons the site's earliest/pre-Flavian Roman layout. Throughout the period most settlement occurred within the site's south quarter and around RBI, with the 'Central'/Double Ditch Enclosure[55] apparently always reserved for 'official' use (and agricultural storage/processing). It was at this time that the latter was refurbished, as marked by the addition of a concentric ditch boundary around three of its sides, and its usage perhaps even involved a limited military presence. The regularly arranged series of small rectangular paddocks just to the north might suggest a degree of associated planning and reflect the hand of some authority. In this proposed layout, Cemetery V – which probably continued to see burial during at least the Conquest Period – would have lain beside a northwest–southeast oriented track/roadway, and perhaps a small open square or even a market. This routeway may well have had a crossroads with a route traversing the crest of the terrace's eastern slope.

As indicated in the frequency plots (Fig. 4.85), little later first-century AD coinage was present. The site then saw relatively high levels of samian, whose representation diminished markedly over the first quarter of the next century, only rise again after AD 125 (see, also, Fig. 5.29).

It is likely that the trackway alongside Cemetery V continued to the southeast down towards the riverside marshes. Plotting its route upon the topographic and geological map prepared for the *Anglo-Saxon Cemeteries* volume (Fig. 4.87, Hirst & Clark 2009, fig. 231), it would have led down to the area of Walton Hall.[56] There it would have met a slight embayment as distinguished by the marshes' alluvial cover. This might suggest the location of a minor quay facility, perhaps in relationship to a tidal creek that could have flowed northeast to connect with Mucking Creek and/or the Thames. Pending any survey investigation in that area, this cannot, of course, be demonstrated. Yet, it is not at all unreasonable to think that the settlement would have had an estuarine transportation link, even if this involved no more than small barge traffic (see Biddulph *et al*. 2012, 101–3, figs. 5.20–2). In the light of this, a most intriguing find is also shown on Figure 4.87: a Lower Greensand rotary quernstone (Cat. No. 1812; 969N × 865E; 43 × 45 × 5.5cm). Apparently occurring as a machine-damaged surface-find, this had obviously been extensively reworked into something approaching a cup-like shape. While this may have been for some manner of structural usage, another very real possibility is that it then served as a stone anchor (see e.g. Farrar 1971). This can never be proven, but it does highlight the potential of Mucking's estuarine/riverine connections for the purposes of trade and communication.

Though these arguments are further developed in the Roman volume, much of what is presented here is admittedly highly speculative. From the perspective of this book, three points are crucial. First, in terms of overall sequence, there clearly was no mid to later first-century AD hiatus and the site's occupation evidently continued uninterrupted at that point. Second, is the awareness that the Roman settlement's 'formal' layout was not just a second-century imposition, but was evident from the outset of that period. Third, is to emphasise the distinct deflection of the Roman system's 'spine'-boundary (i.e. RB6) around the western side of The Plaza's main components (the Granary Row-area thus having been cut off), as the Late Iron Age ceremonial ground was clearly then being afforded respect. Indeed, as attested by the location of Roman Cemetery II abutting the southern square barrow-line and, too, Structure 8's possible shrine (Figs. 4.79 & 4.81), it may have still remained a place of ritual and ceremony. Even more telling in this regard, is that throughout the period this 'ground' remained undeveloped: the 'empty core', which the Joneses (*et al*.) had as horticultural plots and which we see as something altogether different.

Having outlined, albeit in a most summary manner, the site's many Iron Age parts (and its immediate aftermath), Mucking's sheer quantity of Iron Age archaeology must be apparent. In many respects, the prospect of the next chapter is even more daunting: whereas the site generated a commensurate number of artefacts, not all of it was ever quantified. This lack of total finds control (and dating) has obviously constrained this chapter's specific feature and enclosure attribution. Given the available resources, there is nothing further that could be realistically done about this. In the end, various case-studying aside, you can only deal with what you've got in the hope that something of significance emerges ...

Notes

1 When compared to the rest of this book and other 'standard' site publications, we are well aware that this chapter is graphic-heavy. This simply reflects the sheer quantity of the site's Iron Age archaeology. In this capacity it is telling of the intrinsic nature of the subject's knowledge production that, no matter how succinct you can be in a text's presentation, to be intelligible there is a minimal graphic level that you just cannot go below.

2 For a time we speculated whether Hawkes' chronology

was alluded to in the entitlement of the first of the project's Iron Age compounds to be excavated, which were referred to as the 'ABC Enclosures' (i.e. = 'Iron Age'). We were alerted to the possibilities of a distinct Hawkes/Jones linkage on learning that Box 15 of Hawkes' archives in Oxford's Radcliffe Science Library (see Díaz-Andreu & Price 2009) has various communications with Margaret Jones concerning her work at Lechlade, Old Sleaford and Mucking; upon inspection, however, these just proved to be fairly pedestrian fieldwork notices. Moreover, we were subsequently informed (by P. Barford) that the enclosure's naming actually arose from the initial letter-based assignation of the first three 'hut circles' that were dug there.

3 Apparently during the course of MPX there was an awareness of the need to establish the site's 'Early' and 'Late' pottery assemblages, but this had yet to be prioritised at the time of its cessation. It had been intended to work on the former once the Late Bronze Age wares had been dealt with; of the 'Late', focusing on the Banjo's sequence, the intention was to turn to it once the Early Roman material had been tackled (P. Barford pers. comm.).

4 More pertinent to the Roman volume, but still of relevance here, is the fact that on Figure 4.2's uppermost plan the Double Ditch Enclosure is simply entitled 'Early Roman Farmstead', with there being a caption below noting that the site-area saw the fields of a Romano-British *villa*. The latter was presumed to be located downslope to the southwest and not on the site itself; in subsequent years – at least in the site's public reconstruction presentations (e.g. Fig. 6.29) – the would-be villa seems to have somehow migrated up into the site and come to occupy the Double Ditch Enclosure itself (see Note 56, below).

5 Note that, following Needham 2007 (40–1 & 55), Brudenell in his pottery studies uses *Earliest/Early* Iron Age; the former essentially applying to when post-Deverel Rimbury wares were current (*c*. 800–600 BC), with the latter reserved for *c*. 600–350 BC and as marked by Darmsden-Linton pottery. However, for much of the period's archaeology, such dating finesse is not possible and the term 'Early' will be generically applied to both.

6 As opposed to the fieldwork-/MPX- assigned 'RH'/ Roundhouse' designation that encompassed both non-ditched post-built and gully-defined buildings of circular plan-form, the EH/BM-phase introduced a 'PG'/'Penannular Gully' suffix to separately distinguish the latter. Sympathetic to the original archive, here we have maintained the single RH/Roundhouse designation, without any prejudice whether the structure was of residential (i.e. 'house'/'home') *vs*. ancillary/specialist function or not. That we have not used the introduced PG designation has no practical implications as *The Atlas* left the actual enumeration of these buildings in the same continuous series as non-ditch RH/Roundhouses. That said, it does not label many of MPX's partial arc/gully structures (e.g. RHs 49 & 53). Equally, in a number of instances *The Atlas*' rendering of round structures was much less convincing or 'complete' than their MPX-folio plans (e.g. PG/RH48) and they seem to have taken a more critical eye to the recorded field-plan evidence. For our purposes we will largely accept the MPX depictions at face-value.

7 Further discussed below, some of the MPX-designations may have only been based on partial viewing of the assemblage; in the case of RH97, their tallies amount to only 548 sherds, as opposed to the 777 examined by Brudenell (see Table 5.8).

8 As mentioned, the early/mid-1980s HBMC2 manuscript does state that Mucking's rectangular/square settings were probably square barrows; their identification as such is likely to have arisen through Thompson's researches (1982, 783; see also Whimster 1981, 128).

9 Based on Barton's findings at Linford, Drury identified a possibly Early Iron Age roundhouse post-setting at 1300N × 350E (1978a, 45), this though actually seems rather unconvincing.

10 Located within the area of the Banjo complex, the MPX-assigned post-circle Roundhouse 47 was actually attributed to the Middle Iron Age; for our purposes, this dating is thought likely to be erroneous.

11 Only two of Little Waltham's 18 round buildings were held to be eavesgully-surrounded (C1 & 2), with the rest of its gullies all thought to be wall-trenches; some of the wide profiles of these do, however, appear far more akin to eavesgullies than wall-trenches (e.g. C8A, 14 & 17; Drury 1978b).

12 Within the southern, more 'organic-plan' compound of the ABC Enclosures, Number 1, the arrangement of RHs 1/4 could suggest another ditch-linked pairing (Fig. 4.38), but this association would be erroneous as the latter was clearly of later phasing than RH1. If anything, RH1 might have been linked with RH120, a possible building setting that was not recognised as such in the course of excavation; see *Enclosures* section, below.

13 Single crucible fragments were also recovered from Roundhouses 13 and 79, with two forthcoming from the area of Roundhouse 110 in the North Enclosure. The recovery of the 'U'-section metalworking mould apparently from a pit [13939] that cut the inner of the South Rings and lay within the footprint of Roundhouses 6–8 (and, also, the interior-space of RBI) is intriguing. As well as copper, lead and zinc, it bore traces of both silver and gold, suggesting the production of precious metal ingots (see Dungworth & Bayley, Chap. 5, below, Table 4.17, No. 32 and Fig. 5.14.3).

14 The manuscript details which illustrations the authors thought should accompany it, which was considerably more than supplied here and, accordingly, its figure citations have been altered by us.

15 In reality, their final count was actually 112 (see below).

16 This arrangement being termed by us 'Granary Row' (see below).

17 Located within Anglo-Saxon Cemetery II.

18 The pottery did not actually come from a posthole but from a pit within the centre of the six-poster and was instead associated with Roundhouse 93 (see Brudenell below and Fig. 5.5.141).

19 200 cal. BC–cal. AD 120 and 365 cal. BC–cal. AD 60 respectively.

20 Wymer & Brown 1995.

21 Probable four-posters have, though, since been identified within this area (see *ABC Enclosures*, below).

22 As outlined in Chapter Three, Late Bronze Age

'posters' have now been identified, with a number of such settings generally distinguished within the site's northern quarter.

23 Located/surviving between the successive circuits of the Double Ditch Enclosure, three four-posters occurred just south of the main Granary Row array (e.g. Fig. 4.81). The idea was entertained that these may, in fact, have been Romano-British; this being further prompted by the apparent cutting of the one four-poster within that enclosure's interior – Number 47 – into the fills of the main Roman-phase trench-built granary, Structure 1. Further discussed in the Roman volume, the latter relationship seems highly dubious and the situation of the three south-of-Granary-Row four-posters adjacent to the boundary appears accidental; indeed, it is unlikely that they could have functioned had they stood so close to the Roman enclosure's ditch.

24 Involving fence-lines, as opposed to ditched compounds, The Plaza's 'architecture' varies markedly and, accordingly, is separately discussed below.

25 Based on the MPX recording, another enclosure and ditch numbering series is employed in the Roman volume; it proving much too over-elaborate for the purposes of ready reference here (unless, where strictly necessary, for specific Roman-phase elements); that volume duly includes a correspondence table for the two reference systems.

26 Fully described within the Roman volume, one of the 11 cremations within the main Romano-British cemetery in Enclosure 4 – Cremation 26 – included a Colchester-derivative brooch (see Haselgrove, Chap. 5, B6: AE65/1), which attests to a later first-century AD date. Note, also, that a later second- to early first-century BC potin was recovered from the fill of that cemetery's Grave 36 (see Haselgrove, Chap. 5, No. 1).

27 Plus also single occurrences of Hod Hill and Colchester-derivative brooches, as well as a penannular type (see Haselgrove, Chap. 5, Nos. 3, 10–14, 20, 28, 29, 41 & 47); two Simple Wire brooches, both iron, were recovered from Enclosure 5 (*ibid.*, Nos. 6 & 7).

28 Three other Romano-British-attributed cremations and two such inhumations also occurred within the enclosure's interior.

29 In the course of its post-excavation the enclosure was subject to extensive stratigraphic, depositional and artefact analyses, which are far too detailed to be fully incorporated here, as they would run to almost a third of this book's total length.

30 There is no indication within the records of upstanding banks indicating earthwork survival; it has to be presumed that, if they then survived at all, these would have been levelled during the site's machine stripping (see also Hirst & Clark 2009, 11 on the enclosure's survival).

31 That is aside from Roundhouse 106, whose 'half-eavesgully' lay right next to the boundary's north side, and seems to have been laid out in relationship to it (Fig. 4.48). Assigned by MPX to the Late Bronze Age, this could then question the date of the main ditch and suggest that it was substantially earlier, making it the site's only 'eavesgullied' Late Bronze Age or Early Iron Age roundhouse. The relevant *Atlas* plan indicates that the cluster of features within its interior consists of small pits and not postholes. The building's dating evidence is therefore not sufficient to warrant such a radical 'back-dating' of this boundary's layout; any Late Bronze Age pottery recovered from the roundhouse's gully is held to be residual from the earlier pits.

32 The archives also include Trow's phase-assignation of a number of the area's other pits, *etc*.

33 On *The Atlas* entitled PHB 54/mc10178.

34 Within Site Notebook 306 it was proposed that its screen ('palisade') actually predated the cutting of sub-enclosure's ditch circuit; at that time, Roundhouse 110 had not yet been distinguished as a building as such.

35 One other cremation within the area also seems to have been of pre-Anglo-Saxon date, Number 112. Its burnt bone (142g, adult female, with signs of arthritis: J. Appleby) had been set within a pot: a highly burnished, wide-mouthed jar in NSP fabric (Mucking product CA01; Ht. 130mm; Rim 170mm; Base 78mm) of early to mid first century AD (see Thompson, Chap. 5 below). As recorded in Notebook 29 (pg. 30) its grid coordinates were said to be 828N/-172E. This, however, would situate it well beyond the western edge of excavation south of the 1100 Enclosure. It was evidently dug, in great haste, in 1967 and was not planned in the field as such. Given this, in all probability its actual location was along the western side of Anglo-Saxon Cemetery I and immediately west of the partially edge-exposed Graves 113–15. There, on the *Atlas* plan (Sheet 10), there is a peripheral 'lip' where no archaeology/burials are shown, and which is annotated to indicate that it had been exposed in 1967 but that its edge-of-excavation was only planned in two years later. If so, and as shown on Figure 4.53, this cremation's true co-ordinates would then have been 1182N × -172E.

36 Located nearby (1387N/164E), the entry for Cremation 647 reports that with unidentified calcined human bone were slag fragments and grass-tempered sherds, as well as the impression of ?brooch in a cinder (no further details or a drawing available; Notebook 134.50). Whether this is sufficient to assign it an Anglo-Saxon date has to be considered debatable; it is unusual to find a cremation of that date so isolated and removed from a cemetery, and it is possible that the reported 'sherds' were actually briquetage.

37 Then essentially a Wessex phenomenon, Banjo enclosures were defined as a class in the later 1960s (Perry 1970 and 1974; McOmish 2011); Mucking's Banjo certainly did not approximate to any kind of 'classic' example of this enclosure-form.

38 As outlined above, RH47's post-circle was attributed by MPX to the Middle Iron Age; however, based on building-type morphology, this is thought to be erroneous and it was probably also Early Iron Age.

39 Roundhouse 80 being an exception. Oriented south/southeast and lying well northeast of Enclosures 11/12, it was not actually part of the complex *per se*.

40 Close scrutiny of Figure 4.65's base-plan reveals further sequence complication. Aside from the myriad unassigned postholes, what of Ditch [5409]? Suggesting yet another ditch system horizon, it appears to be cut by the arc of Enclosure 11, but its significance remains unknown.

41 Given the nature of the complex's Roman-phase layout, we have duly considered the possibility that the two Anglo-Saxon post-built structures tucked into

the northwest exterior of Enclosure 12 – PHBs 19 and 27 (see Fig. 4.65 and Hamerow 1993, 103, fig. 56) – were actually of Roman date. After discussions with Hamerow, and reviewing the area's Roman dating evidence, however, the original attribution seems sound.

42 It is clear that not all of the enclosure complex's metalwork finds were entered into the final catalogues, and the relevant small finds notebooks list some quantity of iron items – variously nails and blade fragments, *etc.* – as coming from the area.

43 Late Iron Age pottery production had previously been suspected within the area, it being understood that the period's surface-built kilns would not have survived.

44 This is the sole instance in this volume where the MPX ditch numbering system is employed; it being considered unnecessarily cumbersome for this book's purposes, although is used throughout the Roman volume.

45 Mention should be made here that we have fully considered the possibility that Roman Well 4 may have originated as a Late Iron Age ritual shaft, given its situation close by the southeastern side of The Plaza's fenced ground (see Figs. 4.81 & 6.23 and Roman vol.). Excavated to a depth of 11m and augered for a further 4.25m below that (bottom not reached), it was re-cut at least three times (traces of a timber lining survived within its mid to lower profile; see Fig. 6.23). It yielded a domestic assemblage of truly vast scale, including more than 6,000 sherds and 1.4 metric tonnes of burnt daub, with most deriving from its second-century AD infilling. Certainly it had a very uncomfortable relationship with an adjacent building (RB Str. 2), making it unlikely that they could have been contemporary. Equally, while recorded as cutting through a later first-century AD boundary, this relationship was determined by the feature's re-cut upper cone and not its primary shaft. With its basal deposits unfortunately left unexcavated, it therefore remains conceivable that this was of pre-Roman date; while a possibility worth airing, this interpretation is, however, thought to be highly unlikely.

46 Situated just exterior to the corner of FL1 and FL4/5, RH54 definitely pre-dated the fence-line settings.

47 Eventually we were able to view this material and, aside from a couple of sherds of probable Late Iron Age/Early Romano-British date, these are all Middle/later Iron Age.

48 For that matter, some could even conceivably have been Late Bronze Age; see Booth *et al.* 2011, fig. 4.45 for the *c.* 1700 radiocarbon year-span – Middle Bronze Age to Late Roman – of 11 absolutely dated unurned cremations from the High Speed 1 sites in Kent.

49 There are no bone data or grave-goods recorded for the cremations there (in Notebook 98): Numbers 203, 280 and 324 lay within Roundhouse 39's footprint (see Fig. 4.83). Of these, one was apparently only spoil-heap 'dug' and another was left unexcavated altogether.

50 A Langton Down-type brooch was also recovered from a large pit along the southern side of the main cemetery cluster ([1498]; see Haselgrove, Chap. 5, No. 38); a probable brooch-coil fragment was also found nearby (Cat. No. 210; see Figs. 5.9 [iii] & 5.23).

51 The file entries concerning Anglo-Saxon Posthole Building 1 within the area of Enclosure 30 (Fig. 4.86) indicate that some quantity of 'Belgic' wares occurred residually within its postholes and associated pits (pedestal bases and 'vesic' sherds; i.e. vesiculated in which the shell temper has been leached out), as well as also Belgic Brick fragments – one apparently having fingerprint impressions (see Hamerow 1993, 8 & 102, figs. 54 & 195). The files also indicate that prehistoric material was recovered from, for example, the areas of PHBs 4 and 6, though the degree to which the files detail the finds is highly variable.

52 As shown on Figure 4.73, the RB3 boundary was evidently replaced by another, parallel ditch. Having inturned ends, the stratigraphic relationship of this most peculiar feature with the Double Ditch system (and its antecedents) makes no sense whatsoever; they seem absurdly 'entangled' and their sequence can simply not have been properly resolved.

53 It is possible that the ditch-corner apparently recorded as being cut by Roundhouse 77's gully was contemporary with this system (see Fig. 4.73); however, given its alignment, it seems more likely to have been a misunderstood post-Medieval boundary.

54 On Figure 4.82 we have shown the original southern end of that boundary as corresponding to a later re-cut terminal at that point (see Fig. 4.83); this, however, is far from certain.

55 In both Chapter Six's Roman-period summary, as well as within the Roman volume itself, the Double Ditch Enclosure is termed the 'Central Enclosure'. This is on the grounds that the concentric 'doubling' of its perimeter was accumulative and that its two ditches were not contemporary.

56 Apparently this was the area where the Joneses thought that the site's 'removed' Roman villa lay and in the project's later years they moved their caravans down to the farm nearby to investigate whether any quantities of pottery or tile, *etc.* occurred there as surface finds; apparently to negative result (P. Barford pers. comm.).

Chapter 5

Specialist Studies and Summation of Parts Iron Age (II)

Mucking's Iron Age is presented in two chapters simply because the volume of evidence and argument outgrew a single chapter. This just attests to the scale of the site's Iron Age evidence as opposed to what went before. The organisation of this chapter will follow standard norms, presenting the period's material culture and, then, its economic and environmental studies. Before progressing to a concluding discussion there will, though, also be presented a series of distributional case-studies, which will further explore issues of artefact patterning within its vast data-sets.

Material Culture

We can be relatively assured of the completeness of the period's various small finds categories, as outlined above and further detailed by Brudenell below. Unfortunately the same is not true of its pottery. The presentation of the latter is somewhat disjointed, with the 'narrative' of its study requiring some explanation here. As outlined below, the current programme's studies were initiated by Brudenell's contribution, which drew on the EH/BM recording. However, with the specific focus of its sample, this essentially amounted to a presentation of the site's Middle Iron Age pottery. This, of course, then left us with a problem: the paucity of distinct Early and Late Iron Age wares.

As discussed and presented in Chapter Four, the site's 'missing' Early Iron Age was addressed by drawing on the wealth of MPX-phase pottery drawings. But what of the Late Iron Age pottery? As may be be apparent in areas of Essex (see Sealey 2013), was this a true hiatus or had its pottery somehow been overlooked during the site's protracted post-excavation? The receipt of Haselgrove's Iron Age coin and brooch report clearly showed that there must have been a significant pottery presence to match those of other artefact categories. Analysis of the Belgic Banjo and the RBI Enclosure sequences demonstrated direct Iron Age–Roman continuity. There must simply have been something wrong in the way that the material was tackled. For reasons outlined elsewhere, the root of this was essentially that the wheelmade Iron Age wares had been recorded along with the Early Roman pottery, and that somewhere along the way the two had been conceptually incorporated. Accordingly, we asked Isobel Thompson (who had earlier viewed the assemblages) to review the relevant pottery-file sources in the light of her notes. Even then there was unease between the 'fit' of some of the pottery with the metalwork dating and the enclosure sequences. As presented in the *Style in Landscape* section below ('Late Iron Age Assemblages – 'Belgic' and Conquest Period Wares'), we therefore finally case-studied the Banjo's distributions by depth; from this a degree of resolution was achieved. We are not for a moment claiming that this amounts to an entirely satisfying result – especially in the light of just how significant the site's Late Iron Age occupation proved to be – but it is all that current resourcing will permit. Certainly an issue warranting future study, this problem is moreover exaggerated by the prehistory/Roman division of these last two project volumes. We have come to understand why so many recent project reports amalgamate their Late Iron Age and Early Roman phases (e.g. Framework Archaeology 2006, 202–8). Obviously no longer a realistic option here, to have done this would nonetheless have risked losing sight of the extraordinary nature of the site's later Iron Age manifestation.

Middle Iron Age Pottery Matt Brudenell

This study is based on the analysis of 18,928 sherds of Middle Iron Age pottery (159,460g, 65.95 EVE)

recovered from a select range of features across the site. The Mucking assemblage is one of the largest quantified Middle Iron Age pottery groups from East Anglia, eclipsed only by those from Little Waltham (Drury 1997) and Haddenham V (Evans & Hodder 2006b). The exact quantity of Iron Age pottery from Mucking remains unknown, though it is estimated that the analysed material represents 15–20% of the total recovered (based on the number and type of features sampled).

This report concerns material quantified during the EH/BM-phase of post-excavation. The methodology for recording the pottery was designed by Steve Trow in 1987, though much of the quantification and initial analysis was conducted by Sarah Wilde. Data quantified and computerised during MPX (principally by Jonathan Catton) has not been considered, only because it was not retrieved until after the main body of this text was completed. This earlier recording system was different to that employed during the EH/BM-phase of post-excavation. However, in the future, elements of the two data-sets could be made compatible, providing a more complete sample of the pottery. The value of the MPX archive should not, therefore, be overlooked, especially as it details feature-based assemblages not considered in this report.[1]

The pottery data-set produced during the EH/BM-phase of post-excavation is extremely rich and highly adaptable. As a multitude of sherd variables were recorded, (i.e. number, weight, form, fabric, EVE, surface treatment, position of surface treatment, residuality and abrasion) it is possible to approach the analysis in number of different ways. The aim of this report is to summarise the basic characteristics of the pottery and give an overview of the whole assemblage. This in no way exhausts the potential of this data-set, which could be used to explore a range of specific questions.

The quantified assemblage derives from a restricted range of features, including the North Enclosure, a series of 21 roundhouses, 14 pits and a single four-post structure. These features were selected because a) they contained large pottery assemblages which could yield reliable statistical results; b) they were comparatively well excavated and recorded, especially in regards to the stratigraphic position of finds and lack of 'contamination' from later material; c) they were distributed across the site; d) they included different feature 'types' (i.e. pits, postholes, eavesgullies and ditches).

The single largest assemblage derived from the North Enclosure (9977 sherds, 74,440g). A number of factors made this the focus for study during the EH/BM-phase of post-excavation. First and foremost was the fact that the North Enclosure was the largest Iron Age compound at Mucking, and unlike the Banjo or ABC Enclosures, it was a discrete entity with a relatively uncomplicated history. Secondly, being well excavated and recorded, it also benefits from deep ditch deposits which had suffered minimal disturbance from later activity. In addition, most of the ditch had silted by the mid first century BC, meaning that the deposits contained a large 'closed' assemblage of stratified Middle Iron Age pottery. A range of features were also sampled from within the compound. Assemblages examined included those from the postholes associated with Roundhouse 110, the eavesgullies and postholes of Roundhouses 89 and 97, Poster Structure 85 and the series of pits with the corner sub-compound Enclosure 16.

In order to gain a sample of pottery from across the site, advantage was taken of the distribution of roundhouses. Assemblages from 21 structures were selected for examination, including both post-built and eaves-defined roundhouses. The buildings were a logical sampling unit as they were discrete, manageable entities. Equally, as most were short-lived single-phase structures, it could be assumed that the pottery was broadly contemporary with the building. A small number of select pit-assemblages were also examined, as these contained large 'closed' pottery groups.

This report is broken into three sections. The first gives an overview of the Middle Iron Age pottery analysed during the EH/BM-phase of post-excavation, the aim of which is to describe the basic characteristics of the assemblage, and to discuss its date and regional affinities. This also includes a review of the decorated late La Tène Wares, primarily based on a catalogue complied by Sheila Elsdon during MPX.

The second part of the report is devoted to the analysis of stratified pottery groups from the North Enclosure. Pottery from this compound forms the key to unravelling the Middle Iron Age ceramic sequence at Mucking, and is therefore discussed in detail. The analysis allows a range of traits to be defined which are chronologically sensitive. These are then used to formulate criteria for distinguishing between 'earlier' and 'later' Middle Iron Age assemblages, to which provisional dates are given. The remaining pottery groups from the structures and pits are then assessed against these criteria, and are assigned to phase accordingly. These assemblages are not discussed any detail, though the basic quantified data are presented in a series of tables.

The final part of the report comprises a catalogue of illustrated vessels. The majority were drawn during the EH/BM-phase of post-excavation, and depict the vessels from the analysed contexts. The accompanying descriptions have been adapted from the archive, and can be cross-referenced with the data-base. The EH/BM drawings are supplemented by a range of other illustrations completed during MPX. These vessels derive from features scattered across the site, and include drawings of the La Tène decorated wares compiled by Elsdon. Where possible, her original notes/captions have been used in the catalogue. The remaining vessels have been described by the author, who has assigned forms on the basis of the drawings only.

The description of these vessels is very limited, as details of fabric and surface treatment are not recorded.

Fabrics

Nine fabrics were identified in the assemblage, the descriptions of which were taken directly from the archive (see below). The fabrics belonged to three basic groups, defined by the principal type of inclusion (sand, flint and shell/vegetable matter). By weight, 62% of the pottery was flint-gritted, 35% was sand-tempered and 3% had organic 'vegetable' inclusions (Table 5.1). Fabrics F2, FS and S2 dominated the assemblage, accounting for 84% of all material. Across much of Essex, the frequency of flint-gritted wares declines markedly during the Middle Iron Age, having previously dominated assemblages since before the turn of the first millennium BC. During the Middle Iron Age sand-tempered fabrics come to the fore, and in some assemblages very high frequencies of sandy wares are recorded. At Little Waltham, for example, the frequencies reached *c.* 80% between the third and first century BC, with only *c.* 8% flint-gritted wares (Drury 1978b, 56, table 10). In south Essex, however, the transition from flint to sand was more gradual; the use of calcined flint persisted throughout the Middle Iron Age, remaining a major fabric component in some assemblages. The high incidence of flint-gritting at Mucking is not therefore unusual, particularly in its local context. Similar fabric frequencies have been recorded from Middle Iron Age assemblages at Ardale School (Hamilton 1988) and Orsett 'Cock' (Brown 1998), whilst flint-gritted wares were also found at the Gun Hill site (Drury & Rodwell 1973).

Nearly a quarter of the Iron Age pottery from Mucking was burnished (3743 sherds, 39,352g). Table 5.1 demonstrates a close correlation between fabric group and burnishing, suggesting that clays and tempering agents were carefully prepared with regards to surface treatment. Between a third and three-quarters of all sandy wares in the assemblage were burnished, as opposed to just 7–16% of flint-gritted wares (excluding the small number of FG sherds). Most sand-tempered sherds can be considered fine wares, and were characterised by hard, dense, well-sorted fabrics, which testify to the careful clay preparation. Using mean sherd weight (MSW) as an index of brokenness, it is clear that the sandy wares were less fragmented than their flint-tempered counterparts. The durability of these well-made sherds is reflected in their MSW of 9.2–11.5g: a figure above the site average of 8.4g. By contrast, the flint fabrics were more friable, and tended to fracture easily around the coarse inclusions. It may be no surprise, therefore, that far fewer flint-tempered vessel forms could be established, despite the fact that flint-tempered sherds outnumbered the sandy wares. The high degree of fragmentation is also reflected by their MSW, which is between 5.3–8.4g; a figure equal to, or lower than the site average.

In general, most flint-tempered fabrics could be considered coarsewares, owing to their coarse, poorly sorted inclusions and low frequency of burnishing. Whilst the finer flint fabrics, such as F1 and F2, were occasionally treated, the quality of the finish rarely matched that of the sandy wares. Overall, the strong visual and tactile distinction between the coarse flint-gritted wares and fine burnished sandy wares, implies the existence of two distinct vessel classes: coarsewares and finewares.

Sand-tempered Fabrics

S1: Sand: 1) Abundant colourless and off-white translucent, rounded, poorly sorted, quartz (0.05–0.08mm, average 0.1–0.44mm); 2) Scattered dark-grey soft, irregular inclusions or 'rims' around irregular-shaped voids; with fired out vegetable matter; 3) Rare hard glossy with (non-HCL reactive) inclusions – quartzite?

S2: Sand with glauconite: 1) Abundant well-sorted black glauconitic (0.05–0.25mm, average 0.1–1mm). 2) Abundant poorly sorted off-white and yellow translucent rounded quartz (0.1–1mm).

S3: Very fine sandy: no further description.

Flint-tempered Fabrics

F1: Fine sparse flint: 1) Abundant poorly sorted angular white calcined flint (0.05–2mm, but exceeding 1mm); 2) Common rounded and sub-angular translucent colourless well-sorted quartz grains (0.3–0.5mm); 3) Very rare flecks of yellow mica (0.1–0.2mm).

Table 5.1. Pottery fabrics and their relationship to burnishing.

Fabric	No./Wt. (g) of sherds	MSW	% of the assemblage by Wt	No./Wt. (g) of burnished sherds	% of fabric burnished
F1	404/2155	5.3	1.4	37/333	15.5
F2	6178/51,629	8.4	32.4	401/3681	7.1
F3	47/931	19.8	0.6	-	-
FS	5890/43,645	7.4	27.4	684/5970	13.7
FG	11/69	6.3	<0.1	10/65	94.2
S1	4291/39,299	9.2	24.6	1629/17,339	44.1
S2	1244/14,338	11.5	9.0	933/11,191	78.1
S3	251/2348	9.4	1.5	45/746	31.8
V1	556/4778	8.6	3.0	4//27	0.6
X	56/268	4.8	0.2	-	-
TOTAL	18,928/159,460	8.4	100.1	3743/39,352	24.7

F2: Moderately coarse flint.
F3: Coarse flint.
FS: Flint and sand: 1) Abundant poor-sorted angular white calcined flint; 2) Abundant rounded and sub-angular coloured and translucent well-sorted quartz grains, with common flecks of mica.
FG: Flint and glauconite: 1) Abundant poorly sorted angular white calcined flint; 2) Common rounded and sub-angular coloured and translucent well-sorted quartz grains; 3) Abundant well-sorted black glauconite.

Organic/Shell-tempered Fabrics
V1: Organic voids: 1) Abundant irregularly-shaped flat voids (1–5mm); 2) Frequent, short dark 'vegetable' inclusions, poorly sorted, linear and occasionally ribbed; 3) Scattered rounded translucent quartz grains.

Forms

Iron Age vessel forms were classified using a hierarchical system, similar to that adopted for Danebury (Cunliffe 1984, 232, 259–307). The principal advantage of this system was that it allowed a precision of classification concomitant with the proportion of each individual vessel surviving. Within this scheme, pottery was arranged into typological varieties denoted by four-character notations, each character representing a different level of classification. The four levels distinguished were 'class', 'sub-class', 'form' and 'variety'. These were denoted by a letter, letter, digit and fractional digit. For example, a vessel classified as BA1[.2] belonged to Class B, Sub-class A, Form 1, Variety 2. For the purposes of this report, the analysis has been conducted to the level of form, owing to the excessive number of categories created by the sub-division variety, which complicated patterns in the data.

The characteristics of each vessel class, sub-class and form are described and quantified below. In total, 615 sherds (12,561g) could be assigned to vessel class. These included a minimum of 195 vessels, three-quarters of which were bowls. Most vessels could be identifiable to the level of sub-class, including 181 examples (540 sherds, 11,342g) with a combined EVE of 17.7. Figure 5.1 (top) shows that bowls of Sub-class BD dominated the assemblage, with only minor peaks for bowls of Sub-class BC and jars of Sub-class JC. Vessels of all other sub-classes had minimal representation, particularly the dishes (Sub-class DA).

As a whole, the assemblage was characterised by the large number of small-mouthed vessels; a pattern consistent with the high frequency of bowl forms. There were 280 different measurable rims in the assemblage (666 sherds, 115,551g, EVE 27.25) displaying diameters of 4–54cm. Figure 5.1 (bottom) shows that most vessels had diameters of 6–21cm, though there were a small, but consistent, number of larger vessels with mouths exceeding 22cm. Burnishing was not restricted to vessels of a particular size-range, but occurred on pots of almost every category, including the larger vessels. In fact, the pattern of burnishing broadly mirrored that of the assemblage as a whole, with *c.* 50% of measurable rims treated (298 sherds, 5495g, EVE 13.25). More broadly, the graph displays three distinct peaks in vessel-size: the first around 8–9cm, the second around 16–17cm, and a third smaller peak at 28–29cm. The overall distribution suggests the presence of three basic vessel-size categories, each centred on one of the peaks. Small vessels are thus defined as pots with diameters up to 15cm. Medium-sized vessels are those with diameters of 16–21cm, and large vessels having diameters above 22cm.

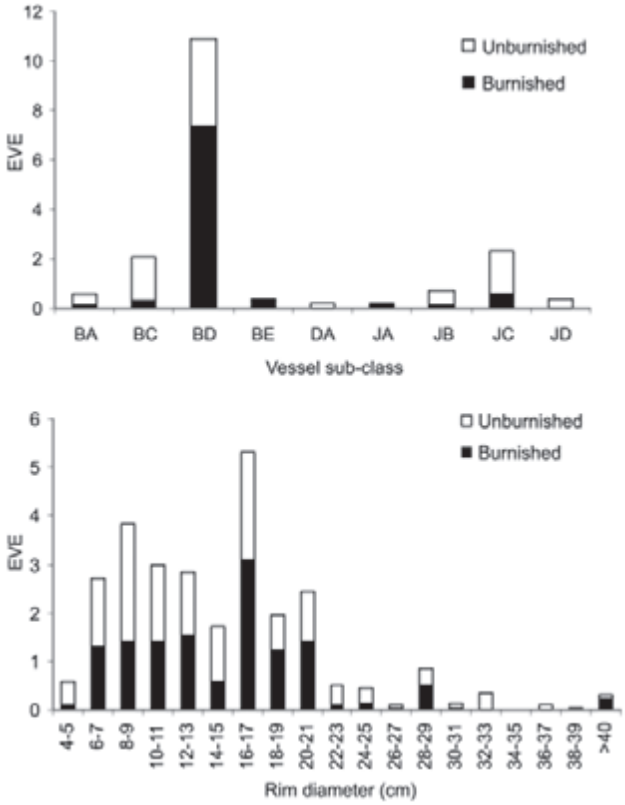


Figure 5.1. Pottery vessels assigned to sub-class (top); below, rim diameters.

Bowls (Class B)

Bowls were defined as vessels with a height less than the rim diameter or maximum girth. The analysed assemblage contained a minimum of 146 bowls (447 sherds, 8032g) of which 135 could be assigned to sub-class (383 sherds, 7297g, EVE 13.9). Eighty-five per cent of the bowl sherds were made with sandy fabrics (379 sherds, 6998g), and of these, 64% were burnished (243 sherds, 5530g). Burnishing was less common on flint-gritted bowls, occurring on only 41% of the sherds (28 sherds, 339g). The bowls were evidently made in a range of sizes and had rim diameters of 4–38cm. Figure 5.2 compares the frequency of bowl and jar diameters to that from the total assemblage. The three peaks in the bowl line correspond closely to those in the overall assemblage. This demonstrates that bowls were manufactured in all three of the defined size categories. Most bowls fell into the small size range (below 15cm), with declining numbers in the larger size categories. Burnishing occurred on bowls of all sizes, and was not just restricted to the smaller vessels.

Sub-class BA – Tub-shaped bowls with near-vertical walls.

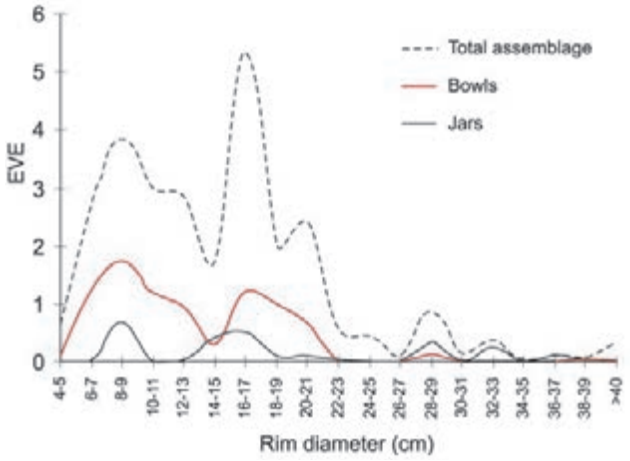


Figure 5.2. Bowl and jar rim diameters compared to the total assemblage.

These were either straight-sided (Form BA1) or cup-shaped, convex-walled vessels (Form BA3). Seven vessels of Sub-class BA were identified in the assemblage (10 sherds, 152g, 0.55 EVE). The bowls were made in a range of flint- and sand-tempered fabrics (by weight: 61% sand, 39% flint), and had rim diameters of 9–19cm. Identifiable forms included one burnished BA1 vessel (three sherds, 31g) and three Form BA3 vessels (four sherds, 43g); one of which had a row of nail impressions along the shoulder.

Sub-class BC – Shouldered bowls, sub-divided into five forms: shallow tripartite bowls with a pronounced angular to sub-angular shoulder, and an everted or upright neck (Form BC1); deep, slack-shouldered or round profiled bowls (Form BC2); bowls with an angular or pronounced shoulder and constricted mouth (Form BC3); angular tripartite bowls with shoulder around the vessel's mid-point and a short everted rim, equal or narrower than the girth (Form BC5); and deep, high-shouldered bowl/jar forms with an everted rim (Form BC7). In total, 26 vessels of Sub-class BC were identified in the assemblage, with diameters ranging from 7–18cm (69 sherds, 1150g, 2.05 EVE). Burnishing occurred on 25 sherds (380g) but was restricted to Forms BC1, BC2 and BC7. By weight, 54% of the pottery was sand-tempered and 46% was flint-gritted. Tripartite bowls of Forms BC1 and BC5 were made exclusively in flint-tempered fabrics. These are similar to Early Iron Age forms, and some of the vessels may be classified as plain Darmsden-Linton bowls.

The most commonly occurring bowl-form was BC2, which has similarities to Little Waltham Forms 11 and 16 (Drury 1978b, 52–6). Fifteen of these vessels were present in the assemblage (36 sherds, 450g); two were burnished, whilst another three were decorated (two with pinched rows and one with a fingertipped rim-top). The remaining forms included two BC1 bowls (two sherds, 18g), one of which was residual, the other burnished; two BC5 vessels (four sherds, 110g), one a residual bowl decorated with nail-marks on the shoulder; a single burnished BC7 bowl (16 sherds, 245g), and two BC3 vessels (six sherds, 92g), one which a fingertipped rim-top and scored body, with the other having a groove along the rim-top.

Sub-class BD – Bowls with sinuous or rounded profiles, sub-divided into four forms: globular bowls with upright or slightly everted necks (Form BD1); 'S'-profiled bowls with marked shoulders (Form BD2); 'S'-profiled bowls (Form BD3); shallow 'S'-profiled bowls with rim diameters equal or greater than the girth (Form BD5). Bowls of Sub-class BD dominated the assemblage, and typify the site's Middle Iron Age ceramics. Forms BD2 and BD3 are similar to Little Waltham Form 13, and to a lesser extent, Form 14 (Drury 1978b, 52–6). In total, 101 BD vessels were identified in the assemblage with diameters ranging from 4–28cm (283 sherds, 5636g, 10.9 EVE). The bowls can be classified as fineware vessels, and were frequently burnished, with 70% of all such sherds treated (199 sherds, 4432g). Sandy wares dominated the sub-class, and by weight, 96% of the pottery was sand-tempered with just 4% flint-gritted. Form BD5 was made exclusively in sand-tempered fabrics whilst a small number of BD1–3 vessels had flint-gritting.

The most commonly occurring bowl form was BD3, with 35 identifiable vessels in the assemblage (154 sherds, 2983g). The bowls were always plain, and were frequently burnished. Forms BD2 and BD5 were closely related to BD3. Eleven BD2 bowls were identified (28 sherds, 1487g), together with eight BD5 vessels (13 sherds, 234g). Seven of the BD5 bowls were decorated, all with tooled curvilinear motifs. Unlike the other forms, the vessel surfaces of BD5 bowls were more commonly smoothed than burnished. Finally, a small group of bowls belonged to Form BD1. Only seven of these vessels were present in the assemblage (20 sherds, 205g), one of which was decorated with burnished lines across the body.

Sub-class BE – Tub-shaped bowls. There are no further divisions of this sub-class, and vessels are assigned to Form BE1. Only a single example of this form was identified in the assemblage (21 sherds, 359g, EVE 0.40). The vessel was in a sandy fabric and had a mouth diameter of 12cm; it also displayed fingertip decoration on the rim-top.

Dishes (Class D)

Dishes were defined as vessels with the greatest diameter at the rim with a height less than, or equal to, one half of the rim diameter. The analysed assemblage contained a minimum of four dishes (five sherds, 27g, EVE 0.25).

Sub-class DA – Unipartite dishes, sub-divided into two forms: conical dishes (DA1) and hemispherical dishes (DA2). Three of the dishes identified in the assemblage belonged to Sub-class DA (three sherds, 14g, 0.20 EVE). Two were made with flint-gritted fabrics, the third was sand-tempered. None of the dishes were burnished or decorated. Only one of the vessels was assignable to form, a DA2 dish (one sherd, 4g).

Jars (Class J)

Jars were defined as vessels with a height in excess of the rim diameter or maximum girth. The analysed assemblage contained a minimum of 45 jars (163 sherds, 4502g), of which 43 could be assigned to sub-class (154 sherds, 4031g, EVE 3.6). In terms of fabric frequency, 70% of the jars were made with sand-tempered fabrics (114 sherds, 2702g), 28% were made in flint-gritted wares (146 sherds, 1607g), and

Table 5.2. Base forms.

Base Category	Archive Forms	No. sherds	Wt. (g)	No. Vessels
Flat	A, B, C	178	4354	82
Pinched	E, F, K, R	53	1187	30
Stepped	D, S	140	3031	56
Beaded	J	17	787	5
Omphalos	Q	3	30	2
Foot-ring/pedestal	G, H, L, M, N, P	151	3817	89
Unassigned		110	1508	105
TOTAL		652	14,714	369

the remaining 2% had organic inclusions (three sherds, 193g). Burnishing was less common on jars than bowls, though surprisingly, flint-tempered fabrics were more frequently treated. In total, 28% of the flint-gritted sherds were burnished (13 sherds, 575g) as opposed to just 21% of the sand-tempered sherds (30 sherds, 813g).

As with the bowls, the jars were manufactured in a range of sizes and displayed rim diameters of 7–36cm. However, the frequency of different vessel sizes was somewhat different, as illustrated by Figure 5.2. Whilst the distributions of peaks in this graph are broadly comparable, the overall shape of the jar-line is noticeably flatter that that for bowls. This indicates a more balanced representation of small, medium and large jars in the assemblage, as opposed to the bowls, where there is a much higher frequency of small vessels. In term of size and surface treatment, burnishing occurred on jars of all sizes: a pattern matching that of bowls.

Sub-class JA – Unipartite jars; cylindrical, barrel-shaped or conical. The jars were sub-divided into two forms, though only Form JA2 was represented. This form consisted of cylindrical jars and jars with slightly convex sides, similar to Little Waltham Forms 7 and 10a (Drury 1978b, 52–6). Four jars of Sub-class JA were identified (five sherds, 112g, 0.2 EVE), three of which were made in flint-gritted fabrics; the fourth with sand. Three of the jars were assigned to Form JA2 (four sherds, 107g), and of these, two were burnished (95g).

Sub-class JB – Bipartite jars with a biconical profile, sub-divided into two forms: biconical jars with rounded shoulder located around the mid-point of the vessel wall (Form JB2); large biconical storage jars (Form JB3). In total, 10 jars of Sub-class JB were identified in the assemblage (13 sherds, 255g, 0.7 EVE). The jars were made in a range of fabrics (by weight: 75% sand, 23% flint, 2% shell/organic matter), and had rim diameters between 8–16cm. A single vessel was decorated with cabling along the rim-top. The two JB2 jars in the assemblage were both burnished (two sherds, 41g), whilst the two JB3 jars were plain (four sherds, 155g)

Sub-class JC – High shouldered tripartite jars with distinct neck or rim zones, sub-divided into three forms; jars with marked shoulder and concave neck (Form JC1); slack-shouldered jars with upright necks (Form JC2); large globular bodied jars with upright or everted rims (Form JC3). The assemblage included 24 jars of Sub-class JC (129 sherds, 3296g, 2.3 EVE), with rim diameters of 7–36cm. Burnishing occurred on 37 sherds (1110g), but was restricted to jars of Form JC2 and JC3. By weight, 71% of the pottery was sand-tempered, whilst the remaining 29% was flint-gritted. Two vessels were decorated on the rim-top; one with fingertipping, the other cabled.

There were 10 JC2 jars in the assemblage (86 sherds, 1884g) and nine JC3 jars (34 sherds, 1169g). Neither jar form was decorated, though two JC2 vessels were burnished, as were three JC3 jars. The single JD1 vessel (two sherds, 112g) had fingertip impression along the rim-top.

Sub-class JD – Globular jars, sub-divided into two groups: globular jars with short upright necks (Form JD1); large globular jars with thickened or out-turned rims (Form JD4). Five jars of Sub-class JD were identified in the assemblage, (seven sherds, 368g EVE 0.4), with rim diameters of 15–22cm. None of the jars were decorated or burnished. By weight, 51% of the pottery was produced in vesicular/organic-tempered fabrics, 24% was sand-tempered and 24% was flint-tempered. Identifiable forms included three JD4 jars and a JD1 jar (one sherd, 18g). Some of the JD4 jars resemble early Belgic forms, and may be late additions to the ceramic repertoire.

Bases

The EH/BM typology of bases included 17 different forms. For the purposes of this report these have been simplified into six categories; Table 5.2 lists the relationship between categories and forms in the archive. The assemblage included 652 base sherds (14,714g), deriving from 369 different vessels. Over 70% of the bases could be assigned to type; common forms were the flat bases and foot-ring/pedestal bases (Fig. 5.3). The latter type tended to belong to bowls of Sub-class BD, there being several examples in the illustrated catalogue. The foot-ring/pedestal bases were frequently burnished, and 9% were decorated with wiped crosses on their underside (eight vessels, 14 sherds, 470g). These are considered in more detail below, though it is worth noting that they are confined to archive Forms N, M and P.

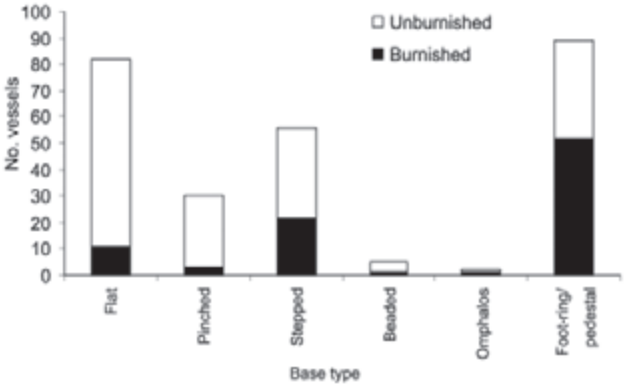


Figure 5.3. Frequency of base-types.

Decorated Sherds and 'Late La Tène' Decorated Pottery

By count, 3.5% of the sherds in the assemblage were decorated (5.3% by weight). This included 660 sherds (8390g), representing a maximum of 450 vessels (Table 5.3). Decoration was present on jars and bowls of all sizes, with mouth diameters of 5–32cm. Though a wide range of decorative techniques was employed, most were relatively simple, and were confined to particular zones of the vessel, notably the rim and shoulder. The most common form of decoration was fingertipping, found on 33% of the decorated vessels, particularly on the larger-sized ones. Fingernail impressions, scoring and horizontal tooling (either in the form of incising, combing, grooving, or the use of deeply burnished lines) were also prevalent. These types of decoration are commonly encountered in Middle Iron Age pottery assemblages from Essex, and frequencies at Mucking are by no means exceptional. What does distinguish this assemblage is the relatively large number of sherds displaying incised curvilinear motifs, rouletted patterns and stamped circlets. These schemes belong to a distinct decorative tradition that emerges on either side of the Thames Estuary during the latter part of the Middle Iron Age, with elements continuing into the Late Iron Age. Sherds or vessels displaying these traits belong to the 'Mucking-Crayford' and/or the 'Mucking-Oldbury' style-group, as defined by Cunliffe (1978; 1991; 2005) and Brown (1991).

In total, 133 sherds (2149g) in the assemblage can be assigned to this 'style' of pottery, including a minimum of 72 different vessels (those sherds associated with this tradition being marked with an asterisk in Table 5.3; see Fig. 5.25 for distribution). Given the general rarity of these sherds/vessels on most sites in Essex, the figures seem relatively high, at least on first appearances. Yet, when calculated as a percentage of the total number of sherds in the Mucking assemblage, these figures are in fact extremely low, with only 0.7% of sherds bearing 'late La Tène' decoration, or 1.3% by weight. Unfortunately, it is difficult to gauge how meaningful these numbers are, as there are currently no comparable figures published in Essex or Kent. One suspects that the decorated vessels are neither rarer nor more plentiful at Mucking than on other sites along the Thames Estuary, such as at Ardale School and Gun Hill: Mucking simply has more examples because of the overall quantity of pottery recovered.

In terms of Iron Age pottery studies, the sizeable assemblage of late La Tène pottery from Mucking is extremely important, as relatively little is known about 'Mucking-Crayford' and 'Mucking-Oldbury' style pottery. Whilst the basic components of these two groups have been characterised, including the mapping of their distributions or 'style-zones', there have been few opportunities to analyse vessel forms and decorative schemes from sizeable collections recovered from stratified contexts. The following discussion goes some way to alleviate this. However, most of the late La Tène decorated pottery from Mucking derives from the unquantified assemblage, making it impossible to judge exactly how much material there is. Fortunately, it would appear that most, if not all of these pieces were illustrated, and the vast majority were accompanied by notes by Shelia Elsdon, who recorded the type of decoration, the nature of surface treatment and the fabric. This has allowed us to construct a complete catalogue of decorated sherds, from which it is possible to discuss the different decorative schemes, and often the vessel forms they were found on. The following descriptions are based on categories identified by Elsdon, and the accompanying discussions should be considered an updated appraisal of the decorative tradition in the Lower Thames region.

Stamped and Rouletted Sherds

Circular Stamps – The simplest form of circular stamp is the single circle. In 1975, only three sites in the Thames Estuary and Lower Thames region displayed this stamp, these being Mucking, Crayford in Kent and Hawks' Hill, Surrey (Elsdon 1975, 18). There are eight examples of this stamp in the Mucking catalogue, though none are in the quantified assemblage. Judging by the shape of the sherds, most appear to belong to large globular jars. The stamps were always found in relation to a pattern group, either in combination with more complex circular stamps, curvilinear lines, punched dots, interlocking arcs, rouletting, or incised chevrons.

The most common form of circle-stamp is the double or triple concentric circle. Fourteen examples are recorded in the illustrated catalogue, only four of which had triple concentric rings. As with the single circular stamps, none of the concentric circles occurred in isolation, but form parts of more complex decorative schemes. The stamps are normally arranged in triads and are frequently found between the 'spaces' in pendent arcs and interlocking arcs, or less often, are found as rows between bands of curvilinear lines and other stamps. Once again, these designs appear to be restricted to globular vessels; the most complete design being found on the omphalos-base jar from Cremation 87 (Figs. 4.54 & 5.24). This jar also featured a double concentric ring with central dimple. The only other example of a central dimple was found on a globular beaded-rim jar, where the dimple was set within a single-circle stamp (Cat. No. 207). In 1975, Elsdon listed only two sites where stamps with central dimples were found. These were Lower Halstow and Borden, near Stillingbourne; both on the south side of the Thames Estuary (Elsdon 1975, 18). The only other rare circle stamp in the catalogue is the single dimple, found on a sherd from 945N × 185E (Cat. No. 221). The dimple

is surrounded by a circle of dots, from which emanate a series of curvilinear dot-filled lines.

Rouletting – The reversed 'Z' is the only definite roulette found on pottery from Mucking. There are two examples of this decoration in the catalogue (Nos. 214 & 216), and in both cases the rouletting is backed by curvilinear lines, which probably form formalised arc designs (i.e. pendent, standing or interlocking arcs). The only other regional parallel for this type of decoration is found in a small collection of sherds from Nor Marsh, Kent (Elsdon 1975, 63, fig. 14, nos. 20–1). Three sherds also display reversed 'S'-rouletting, though these patterns have also been interpreted as closely spaced stamps (Cat. Nos. 10, 42 & 227).

Dotted Decoration – The catalogue contains 15 examples of impressed dotted decoration. The dots were used in a number of different decorative schemes, but were commonly arranged in single or double lines flanking incised curvilinear patterns (for a parallel see Ardale School; Hamilton 1988, 83, fig. 71, no. 13). The most elaborate scheme was found on the sherd from 954N × 184E, where a 'whorl' pattern emanates from a central dimple surrounded by dots (Cat. No. 221). Elsdon notes that dot decoration was often employed in a similar manner to rouletting, and tended to be used to emphasise the interlocking arc patterns (1975, 21). This cannot be proved at Mucking, though it seems plausible given the nature of the curvilinear lines.

Dot decoration was sometimes used to infill areas of a motif (Cat. No. 164), and more rarely, it was employed as a decorative device in its own right. A small number of sherds in the catalogue, all apparently from the same vessel, were decorated exclusively with dots. The spacing of the dots is less regular than those normally found backing tooled lines. However, on two of the sherds the dots appear to have been arranged in rosettes (Cat. No. 230).

Sherds with Curvilinear and Rectilinear Patterns

Formal Arc Patterns – The catalogue contains a number of sherds displaying formalised arc motifs. The sherds are often too small to allow the nature of the pattern to be discerned and, in some cases, it is impossible to tell whether a line belongs to a formalised arc motif or a free-flowing one (see below). However, there are probably five examples of interlocking arcs in the catalogue (Nos. 10, 42, 154, 155 & 226). The most complete design is found on the globular omphalos-base jar from Cremation 87, now widely published. Strictly speaking, the arcs on this vessel do not interlock; there is a wide central zone between the standing and pendant arc which is free of decoration. In addition, the arcs are arranged slightly off-centre, giving the pattern a less formalised appearance. Nevertheless, the overall 'concept' of the scheme is in keeping with the interlocking arc motif, and the location of the stamps is consistent with other examples throughout the Thames Estuary region (triads of double concentric circle-stamps placed below the peaks of the lower pendent arc, mirrored by pairs of double stamps in the peaks of the standing arc).

Given that circle-stamps and rouletting are regularly combined with arc motifs, most sherds displaying these decorative schemes probably belong to vessels with complex formal designs. More importantly, as these motifs are confined to two types of vessel – the globular omphalos-base jar and the round shouldered foot-ring jar – the examples listed in the catalogue give some indication of the numbers deposited at Mucking. Reaching an exact figure is extremely difficult, though the catalogue could depict as many as 18 or 19 different vessels, judging by the total number of different circle-stamped, rouletted and arc motif sherds.

Free-flowing Curvilinear Patterns – The illustrated catalogue contains 22 different examples of the curvilinear scroll. The decoration is characterised by free-flowing curvilinear lines which cover the whole of the vessel body. In some examples the zone of decoration is bordered by a horizontal groove or wavy line positioned across the neck of the vessel. Distinct or 'formalised' motifs are difficult to identify, though at least two pots display regular repeating patterns. Overall, the curvilinear decorated pottery from the Thames Estuary has received less attention than the ceramics embellished with formal arcs, stamps and roulette patterns. However, Brown has reviewed this pottery, and found that decoration frequently occurs on round-bodied bowls with everted rims, and where present, foot-ring bases (Brown 1991a, 165–6). This holds true for Mucking, and the catalogue contains at least 12 examples of bowls of Sub-class BD decorated this way; particularly bowls of Form BD2–3 and BD5. Elsewhere along the Thames Estuary, similarly decorated vessels have been found at Oldbury in Kent (Thompson 1986) and Prittlewell (Brown 1983), Ardale School (Hamilton 1988) and Asheldam in Essex (Brown 1991b).

Incised Chevron and Cross-decoration – Six vessel rims in the catalogue had incised rectilinear patterns on their interior edge. Four display incised crosses, whilst the other two had chevrons. These vessels are all bowls of Form BD3 and BD5. Incised chevrons and cross-decoration also occurred on vessel bodies. For example, cross decoration was found on the neck and shoulder of a vessel from Roundhouse 89 (Cat. No. 138). This type of decoration appears to be rare, but can be paralleled by vessels from Ardale School (Hamilton 1988, 84, fig. 72, no. 40) and Little Waltham (Drury 1978b, 74, fig. 48. no. 192).

Chevrons were more commonly used and a number of sherds in the catalogue display these motifs, including Catalogue Number 22, which had chevrons filled with horizontal lines. Other notable examples include the group of globular body sherds from Roundhouse 25, all decorated with bands of free-flowing chevrons (Cat. No. 155; the sherds may, in fact, belong to the curvilinear group discussed above). Interestingly, this pattern of decoration recalls the more formalised designs on two Late Iron Age pedestal urns from Oldbury, Kent (Ward-Perkins 1944, 164, fig. 15). Another vessel with 'novel' decoration is the beaded-rim jar from pit 782N × 266E (Cat. No. 212). This is decorated above the shoulder with a row of chevrons interspersed with loops. There no local parallels for this design, though similar-shaped vessel with chevrons was found at Dragonby, Lincolnshire (May 1996, 498, fig. 19.54 no. 646)

Decorated Foot-ring Bases – Further considered in the *La Tène Wares and Marked Bases* distributional case-study below, there are 26 examples of decorated bases in the illustrated catalogue. Most display wiped or lightly incised crosses, and at least seven different decorative schemes can be distinguished. The simplest is the single-cross, present

on half the decorated bases, one of which is perforated. The more complex variants of this form include the cross-hatch/double-cross motif (four examples) and the lattice pattern (one example). Two of the bases displayed incised arcs, whilst another two had a double 'loop' motif made from incised intersecting ovals. The most complex decorative scheme was found on the base of a bowl from pit 984N × 255E (Cat. No. 211). This was decorated with an incised circle overlain by a simple cross; the quadrants of each contained a single tooled chevron/arcs. One base appeared to have been randomly wiped/incised, whilst the other bases were too fragmented to properly identify the patterns.

In Eastern England it is possible to define three 'core' areas where late La Tène decorated wares were circulated, used and deposited. Broadly speaking, these are the lower Nene Valley in Northamptonshire, a zone between the Humber and the Welland in Lincolnshire and the area around the Thames Estuary in southeast Essex and northeast Kent (Elsdon 1975). Each area is characterised by a distinctive range of decorated vessels with incised and stamped motifs. Pottery from the Thames Estuary has received the least attention, primarily because few large assemblages have been published from 'modern' excavations, other than those from Gun Hill (Drury & Rodwell 1973).

On the basis of current evidence, it is possible to distinguish two categories of late La Tène decorated pottery in the Thames Estuary; those vessel displaying 'formalised' motifs and those with 'free-flowing' designs. The formalised decorative schemes include carefully executed arc motifs and incised lines, sometimes backed with rows of impressed dots, reversed 'S'-stamps and more rarely, reversed 'Z'-rouletting. On occasion, these are found in combination with stamped circlets, normally arranged in triads between the peaks of interlocking arcs. These highly distinctive decorative schemes are restricted to the shoulders of either globular jars with beaded or everted rims and omphalos bases, or tall, elegant high-shouldered jars with foot-ring bases; both types of which are handmade. Formerly known as 'south eastern B' pottery (Ward-Perkins 1938), these vessels are now used to characterise Cunliffe's 'Mucking-Crayford style' pottery (Cunliffe 1978; 1991; 2005). Nigel Brown has emphasised the contrast between the precision of decoration on Mucking-Crayford style pots, and the free-flowing curvilinear motifs that characterise his 'Mucking-Oldbury style' vessels (Brown 1991a, 165). These curvilinear patterns appear to be confined to sinuous 'S'-profiled bowls with everted rims, such as Forms BD2–3 and BD5. The bowls often have foot-ring bases, around 10% of which are decorated with crosses or other designs on their underside. The cross motif was also present on the interior rim-edge of some of these bowls, but is yet to be found in combination with curvilinear patterns.

In terms of spatial distribution, the two 'style-zones' are known to occupy the same region, with vessels of both 'traditions' occurring on sites either side of the Thames Estuary. Both Brown and Cunliffe have suggested that the Mucking-Oldbury group could predate the Mucking-Crayford style; the former – including the plain foot-ring bowls of the once-named 'Wealden Culture' (Ward-Perkins 1944) – being interpreted as an early phase of this tradition. However, a review of the evidence suggests that the chronological relationship is far from clear. The problem remains that very few published vessels have been recovered from modern excavations and most 'classic' examples are without a secure context, let alone absolute dates. Nonetheless, it is possible to estimate the currency of styles by examining their associations with other types of ceramics.

Beginning with the Mucking-Crayford style, it is evident that some of these ceramics were deposited prior to the appearance of wheel-turned pottery. At Gun Hill, sherds of Mucking-Crayford pottery were found in deposits pre-dating those with Late Iron Age 'Belgic' ceramics (Drury & Rodwell 1973). Likewise, at Mucking, stamped and rouletted sherds from a globular jar were found in the secondary silts of the North Enclosure: a horizon devoid of any Late Iron Age material. Having said this, most sherds appear to be found in associated with later pottery. The famous decorated jar from Cremation 87 at Mucking was found with fragments of a Late Iron Age vessel. Similarly, many of the other circle-stamped sherds from the site derive from the area around the Late Iron Age 'Banjo' enclosure and the ditches of the RBI compound, an enclosure with Late Iron Age/Early Roman origins. A globular circle-stamped decorated jar was also recovered from a Late Iron Age/Conquest Period ditch at the Orsett 'Cock' enclosure, a site close to Mucking (Carter 1998).

Elsewhere, stratigraphic associations are less certain. However, Elsdon has noted that the decorated 'south eastern B' pot from Canewdon was discovered at the same site and at the same time as a cordoned wheelmade pot; the vessels probably derived from cemetery contexts (Elsdon 1975, 24). Likewise, Brown has drawn attention to the fact that many Mucking-Crayford fabrics are comparable to 'Belgic' ceramics (Brown 1991a, 165). Where inclusions were identified in the catalogue, 36% of the Mucking examples contained shell: a fabric group commonly associated with Late Iron Age ceramics in this region (the remaining 64% containing sand and/or flint). The overall impression, therefore, is that the ceramics of the Mucking-Crayford style had a long currency, being found prior to, but also alongside, Late Iron Age 'Belgic' pottery. The early history of the style remains ambiguous, but there is no reason *per se* why these vessels could not have been in circulation during the second century BC. In other areas of eastern England, late La Tène Wares are frequently dated to the second to first centuries BC.

The curvilinear decoration of the Mucking-Oldbury style is found exclusively on vessels of Middle Iron Age form and fabric (Brown 1991a, 165). However, at Mucking there is no evidence to suggest that this style predates pottery of the Mucking-Crayford group. On the contrary, in the secondary silts of the North Enclosure both styles of pottery were deposited alongside one another ([10998]), and vessels of the Mucking-Oldbury group continued to be present in the primary and secondary fills of the stratigraphically later sub-enclosure ([10975–10976]). In addition, curvilinear decorated pottery was recovered from Roundhouse 1 alongside a vessel of 'Belgic' form, and sherds belonging to this style were even found in the ditches of RBI and the Banjo enclosure. This suggests that the relationship between Mucking-Crayford and Mucking-Oldbury pottery is more complex than previously anticipated, with no

*Table 5.3. Quantification of decorated sherds; figures by vessel count (bold), number of sherds, and weight (g; * indicates decoration of the late La Tène tradition).*

Position/ Decoration	Rim	Neck	Shoulder	Body	Base (underside)	Unidentified zone	Total
Burnished lines				**2**:19/138		**4**:12/282	**6**:31/420
*Burnished zig-zag line	**3**:3/38						**3**:3/38
Combed						**20**:23/202	**20**:23/202
Combed curvilinear lines						**3**:6/56	**3**:6/56
Horizontal ridging		**1**:2/22				**3**:4/53	**4**:6/75
Vertical ridging				**1**:1/35			**1**:1/35
Grooved lines	**4**:8/52		**1**:1/7			**11**:14/94	**16**:23/153
*Grooved pattern						**1**:1/6	**1**:1/6
Shallow tooled linear lines and nail impressions						**1**:1/7	**1**:1/7
Shallow tooled linear lines		**1**:1/4	**5**:6/38			**72**:83/472	**78**:90/514
*Shallow tooled linear lines and rouletting						**1**:17/110	**1**:17/110
*Shallow tooled linear lines and curvilinear lines						**1**:1/12	**1**:1/12
*Shallow tooled curvilinear lines						**16**:18/202	**16**:18/202
*Shallow tooled curvilinear lines with impressed dots						**6**:13/134	**6**:13/134
*Curvilinear lines, triple ring-stamp and rouletting						**1**:7/45	**1**:7/45
*Shallow tooled curvilinear pattern				**1**:8/237	**2**:16/248	**4**:6/142	**7**:30/627
*Shallow tooled pattern	**1**:2/10		**1**:1/17		**2**:2/236	**19**:19/143	**23**:24/406

straightforward progression from one style to the next. Certainly, the evidence from Mucking demonstrates a degree of overlap in their currency, particularly in the earlier history of the Mucking-Crayford style. (As there are very few examples of Mucking-Oldbury vessels occurring with late Iron Age pottery, either at Mucking or elsewhere, it is unlikely that this style continued beyond the late first century BC.)

Discussion – Date and Affinities

The Middle Iron Age pottery from Mucking belongs to a ceramic tradition that emerged on either side of the Thames Estuary, and is distinct from that which characterises assemblages in central and northern Essex. Though the bulk of the pottery considered in this report is of Middle Iron Age date, some of the material is assignable to the Late Bronze Age/Early Iron Age. In particular, pottery from Roundhouses 108 and 109, Poster Structure 85 and pit [10910] is likely to have been deposited prior to the mid first millennium BC. In addition, a number of residual Late Bronze Age and Early Iron Age sherds were recovered from the North Enclosure (listed in the illustrated catalogue). When combined, however, this material accounts for no more than 3–4% of the analysed assemblage. The vast majority of the pottery therefore belongs to the Middle Iron Age, and is dated from the third to late first century BC. Closer dating within this period is problematic, though some sub-assemblages may be placed towards the beginning or end of this period based on the nature of their 'ceramic profile'.

In both the 'early' and 'late-phase' Middle Iron Age pottery assemblages from Mucking, the most distinctive and prolific form of vessel was the 'S'-profiled bowl of Sub-class BD, in particularly Forms BD2, BD3 and BD5. In southern East Anglia, the plain bowl dominates the Middle Iron Age pottery repertoire, whilst around the Fens and areas encompassing the east and south Midlands, plain or scored slack-shouldered jars are more common. The vast majority of Mucking's BD2, 3 and 5 bowls were plain, burnished vessels produced in sand-tempered fabrics (44% made in Glauconite Fabric S2). Some vessels were exceptionally well-made, and have exterior surfaces which appear to be slow-wheel finished. The bowls often had foot-ring or pedestal bases, around 10% of which were decorated with cross-motifs. Such vessels are commonly referred to as 'everted-rim foot-ring bowls' and belong to Little Waltham Form 13. The bowls occur widely in

southeast Essex, but are most prevalent in assemblages either side of the Thames Estuary; local sites to the north of the river include Chadwell (Manning 1962), Gun Hill (Drury & Rodwell 1973) and Ardale School (Hamilton 1988). Their distribution south of the Thames was first noted by Ward-Perkins, who recorded find-spots in Kent, Surrey and Sussex, and assigned the vessels to the 'Wealden Culture', originally through to have emerged in the early first century BC (Ward-Perkins 1944).

The bowls are now known to have a currency spanning the third to late first century BC, and are present in the earliest Middle Iron pottery groups from Little Waltham (Phase II, Drury 1978b) and Ardale School (Area A, Hamilton 1988). Ancestral forms may be found in 'later' Darmsden-Linton groups (Cunliffe 2005, 115), particularly the round shouldered foot-ring bowls such as those from Pit SCS 2501 at Stansted (Brown 2004, 45, fig. 31, nos. 17–18). Although the evidence is limited, there is some suggestion that the frequency of BD2/3/5 bowls/Form 13 bowls increased over the course of the Middle Iron Age. For example, at Little Waltham the percentage of Form 13 vessels increased from 5% in Period II (third–late second century BC) to 15% in Period III (late second–mid first century BC), before declining back to 5% in Period IV (late first century BC). A similar pattern is recorded at Ardale School. There, 9% of vessel rims belonged to Form 13 bowls in the Area A assemblage, believed to be contemporary with Period II material at Little Waltham. This figure reached 58% in the later pottery groups from Area C, before falling to 36% in Area D, where Late Iron Age 'Belgic' forms were also found.

A rise in bowls of Sub-class BD can also be demonstrated at Mucking, using pottery from the ditch sequence in the North Enclosure. In the primary and secondary silts of the perimeter ditch, 38% of vessels belonged to bowls of Sub-class BD (14 out of 37), whilst in the later primary and secondary fills of the sub-enclosure, located in the corner of the compound, the frequency of BD bowls rose to 70% (30 out of 43 vessels). Combined, the figures all suggest that these bowls became more prolific over the course of the Middle Iron Age, particularly in southern Essex. This has important practical implications, as it means that the frequency of bowls can be used as a tool to help gauge the date of Middle Iron Age assemblages, or at the very least, suggests whether groups have 'early' or 'late' tendencies.

It is possible to outline other chronological trends in the development of Middle Iron Age pottery at Mucking, primarily based on the sequence of deposits in the North Enclosure. The earlier pottery from that compound seems to be characterised by a very high percentage of flint-tempered fabrics, and may occasionally contain sherds with forms and decorative styles which are similar to, or derive from, those encountered in Early Iron Age 'Darmsden-Linton' type assemblages (Cunliffe 1968; 2005; Brown 1988; 1992; 2004). These included some bowls and jars of Forms BC1, BD5, JB2–3 and JC1; in other words, jars and bowls, with pronounced or angular shoulders and short upright or everted rims and/or concave necks (Essex Prehistoric Pottery Forms D & N). The bowls tended to be plain, though many of the jars continued to have fingertip impressions on the rim and shoulder. However, even these vessels form only a minor component of 'earlier' groups, and may represent the vestigial traits of the Darmsden-Linton style, or alternatively, residual sherds. It is debatable how early one should place these groups. Based on dates from Stansted, the 'later' Darmsden-Linton style pottery appears to have a currency spanning the fifth–fourth century BC (Brown 2004, 41), and may be characterised by reduced levels of decoration, particularly on the fineware bowls. Given these dates, it is suggested that the Middle Iron Age sequences at Mucking could begin as early as the late fourth century BC, thus allowing for some overlap with 'lingering' Early Iron Age pottery styles.

The 'later' Middle Iron Age pottery groups are best distinguished by the presence of late La Tène decorated wares, whether of Mucking-Crayford or Mucking-Oldbury style. As suggested above, these vessels may have been in circulation by the second century BC, and at Mucking, both groups appear in pre-'Belgic' contexts. A shift in fabric frequency is also evident in pottery from later deposits. Whilst flint-fabrics tended to dominate the 'earlier' Middle Iron Age groups, sandy wares become more prolific in later assemblages. This trend probably reflects the growing number of Form BD2, 3 and 5 bowls being deposited toward the end of this period that, as demonstrated, are nearly always produced in burnished sandy fabrics. Therefore, assemblages with 'later tendencies' are usually characterised by a high proportion of sandy wares (*c.* 50% or above), a large number of burnished sherds and Form BD2/3/5 bowls, and where present, late La Tène decorated sherds.

North Enclosure Pottery

A total of 9977 sherds (74,440g) of later prehistoric pottery were analysed from The North Enclosure ditches. This included ceramics from the primary and secondary silts of the main perimeter ditch ([10999] & [10998]) and pottery from the same deposits in the stratigraphically later corner-compound (Enclosure 16, [10796] & [10795]).

Assemblage Characteristics: Fabrics, Forms and Surface Treatment

Most of the pottery was produced using clay recipes with flint inclusions (Table 5.4). By weight 69% of the assemblage was flint-tempered, and although frequencies fluctuated across the stratigraphic sequence, the incidence of flint fabrics never fell below 50% in any of the analysed contexts (see below). Moderately coarse flint-tempered fabrics (F2) and those with flint and sand (FS) dominated the flint category. Both were coarseware fabrics that were seldom burnished. Sandy wares accounted for 29% of the assemblage; the most abundant fabrics being S1 and S2. On the whole, the sandy wares tended to be fineware fabrics, with over a third of sherds being burnished. The close correlation between burnishing and fabric is particularly notable for S2, where by weight, 67% of the pottery was burnished.

In total, 602 rims sherds were analysed in the assemblage, belonging to a maximum of 498 vessels with an EVE value of 31.05. For the vast majority of vessels, only 5% of the rim circumference remained intact, giving some indication of the level of sherd fragmentation (only 14 vessels had 20%

Table 5.4. North Enclosure fabric frequencies and their relationship to burnishing.

Fabric	No. sherds	Wt. (g)	% by Wt.	No. burnished	Wt. burnished	% of fabric burnished (by wt.)
F1	300	1531	2.1	14	95	6.2
F2	4992	33,965	45.6	202	1561	4.6
F3	24	387	0.5	-	-	-
FS	2402	15,774	21.2	54	356	2.3
S1	1502	13,589	18.3	363	4306	31.7
S2	469	6247	8.4	272	4223	67.6
S3	161	1462	2.0	24	490	33.5
V1	115	1445	1.9	2	13	0.9
X	12	40	0.1	-	-	-
TOTAL	9977	74,440	100.0	931	11,044	

Table 5.5. North Enclosure, vessel sub-classes.

Class	Sub-Class	No.	Wt. (g)	EVE	No. burnished	Wt. burnished (g)
Bowl	A	4	86	0.25	-	-
	C	13	309	0.6	2	25
	D	158	3882	5.7	118	3352
Dish	A	3	17	0.1	-	-
Jar	A	5	112	0.2	2	95
	B	4	66	0.2	1	22
	C	19	657	0.95	6	121
	D	6	350	0.35	-	-
TOTAL		212	5479	8.4	129	3615

or more of their circumference remaining). One hundred and twenty-three vessel rims were measurable, and these displayed diameters of 4–30cm (EVE 9.55). Figure 5.4 (bottom) shows that small-mouthed vessels dominated, particularly those with diameters of 6–11cm. A few medium- and large-sized vessels were also present, but in very small numbers. The bias towards small vessels is particularly evident when we compare the overall shape of this graph with that from the assemblage as a whole (Fig. 5.4, bottom). The most striking difference is the absence of a second 'peak' in the North Enclosure graph, corresponding to medium-sized vessels with diameters around 16–17cm. These are clearly under-represented in the enclosure. Conversely, the vast majority of the small vessels from the overall assemblage appears to have been deposited here. Such differences may be important in understanding how consumption practices varied across the site, particularly in relation to the use and deposition of different 'sets' of vessels.

The North Enclosure assemblage also had 194 base sherds (4182g), deriving from 172 different vessels. Over 60% of these could be assigned to type, common forms being flat bases and foot-ring/pedestal bases.

As numerous vessel forms were identified in the analysis, it is possible to build a detailed picture of the ceramics used and deposited through the history of the enclosure. A total of 212 sherds (5479g) were sufficiently intact to identify vessel sub-class (Table 5.5), and of these, 178 (4735g) could be assigned to a specific form (Table 5.6). Bowls evidently dominated the assemblage, with 83% of vessel-assigned sherds falling into this class. Measurable bowl rims ranged

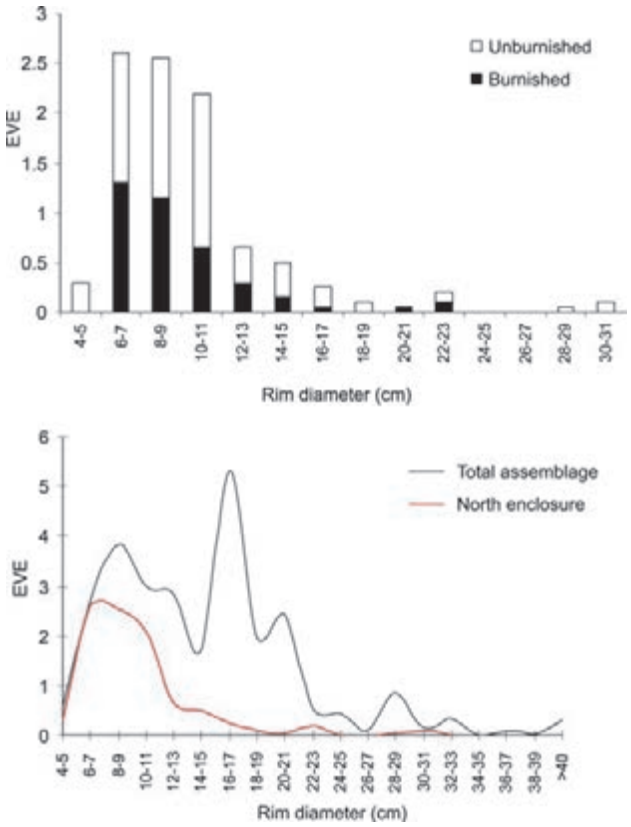


Figure 5.4. North Enclosure rim diameters (top); below, comparison between rim diameters from the North Enclosure and the overall assemblage.

Table 5.6. Relationship between North Enclosure vessel forms and fabrics (figures given by number/wt [g]).

Class	Sub-class	Form/ Fabric	F1	F2	FS	S1	S2	S3	V1	Total
Bowl	A	3	1/8	-	-	-	-	-	-	1/8
	C	1	-	1/6	-		-	-	-	1/6
	C	2	-	1/9	-	1/19	-	2/25	-	4/54
	C	5	4/99	1/11	-	-	-	-	-	5/110
	D	1	-	-	-	9/66	-	4/76	-	13/142
	D	2	-	-	-	10/660	10/498	-	-	20/1158
	D	3	-	-	-	11/368	88/1555	2/123	-	101/2046
	D	5	-	-	-	3/31	-	2/82	-	5/113
Jar	A	2	-	1/21	2/12	1/74	-	-	-	4/107
	B	2	-	1/22	-	-	-	-	-	1/22
	B	3	-	-	-	1/16	-	-	-	1/26
	C	1	-	-	-	2/122	-	-	-	2/122
	C	2	-	1/40	-	2/21	-	-	-	3/61
	C	3	-	2/39	1/199	9/198	-	-	-	12/436
	D	4	-	2/67	-	-	1/89	-	2/189	5/436
TOTAL			5/107	10/215	3/211	49/1565	99/2142	10/206	2/189	178/4735

from 6–12cm in diameter, with a mean diameter of 9cm (median, 9cm). The most characteristic bowl types were the small round-bodied vessels of Sub-class D, produced exclusively in sandy fabrics. These bowls had rim diameters of 6–12cm, and were frequently burnished (particularly the smallest vessels with diameters under 10cm). Prolific within the bowl sub-class were the sinuous 'S'-profiled forms of BD2, 3 and 5, which accounted for 70% of all form-assigned vessels. Other bowls in the assemblage included a relatively small number of shouldered vessels (Sub-class C) and simple open bowls (Sub-class A).

The remaining 16% of vessel-assigned sherds in the assemblage were jars, with diameters ranging from 7–18cm. With a mean diameter of 12cm (median, 10cm), these represent the small- to medium-sized jars rather than the large storage vessels. No forms of large vessel were identified in the analysis, although their presence is implied by the occurrence of rims with diameters exceeding *c.* 28cm (Fig. 5.4, top). The most commonly occurring jar-types were the shouldered jars of Sub-classes C and D, notably the globular forms JC3 and JD4. These jars were made in a range of flint- and sand-tempered fabrics, and had rim diameters of 12–16cm. Around a quarter of jar sherds in the assemblage were burnished, though only one rim from a burnished jar was measurable. This belonged to a very small vessel, whose mouth was just 8cm in diameter. As Figure 5.4 (top), demonstrates, very few large vessels tended to be burnished, suggesting that it was only the small jars and bowls/cups which were regularly treated, particularly those with diameters of 6–12cm.

As a whole, burnished sherds were relatively uncommon, there being only 931 sherds in the assemblage (11,044g). This represents just 9.3% of the assemblage by sherd count or 14.8% by weight. It is evident that burnishing occurred on a restricted range of fabrics and forms, namely the sandy wares used in the production of bowls in Sub-class D, particular those of Forms BD2, 3 and 5. Burnishing did occur on other types of bowls and small jars, but not as consistently.

Decoration was found on a total of 381 sherds (4249g), from a maximum of 301 vessels. A wide range of decorative techniques was employed, including the fingertip/nail impressions, tooled linear and curvilinear motifs, scoring and cordon moulding (Table 5.7). The vessel zones most frequently embellished were rims and shoulders, with 8% of all rims in the assemblage being decorated. In general, most decorated sherds belonged to coarsewares in flint-tempered fabrics, particularly those displaying fingertip decoration, cordons, grooves or sherds with shallow tooled linear motifs. The decorated sandy wares tended to have burnished lines and cross-bases, whilst scored sherds, fingernail decorated sherds, and those with tooled curvilinear motifs were made in a range of sand- and flint-tempered wares. Very few decorated vessel sherds were burnished, there being only 43 examples in the assemblage (457g, 11% of decorated sherds or 5% of all burnished sherds). The burnished sherds received shallow incised lines and curvilinear patterns, though in three examples, fingertip and nail impressions were used. Most burnished sherds belonged to the late La Tène decorative traditions discussed above, including 57 sherds (669g) from a maximum of 31 vessels. This represents 8–16% of the decorated assemblage, as calculated by vessel count (8%), sherd count (15%) or weight (16%).

Stratigraphic Sequence Changes – Ditch Deposits

Basic changes to the Middle Iron Age ceramic repertoire can be identified by studying the stratified pot groups from the North Enclosure. The smallest individual assemblage derived from the primary silts of Enclosure 15 ([10999]). Stratigraphically, this was the earliest deposit in the North Enclosure and yielded 629 sherds (4804g), with a MSW of 7.6g. It was characterised by a very high percentage of flint-tempered coarseware sherds; few of these could be assigned to a specific form. Some of this material was undoubtedly residual, including the LBA/EIA bowl assigned to Form BC5. By weight 71% of sherds in the context were flint-tempered, 19% contained sand, and the remaining 10%

*Table 5.7. Quantification of decorated sherds from the North Enclosure. Figures are arranged by vessel count (bold), number of sherds, and weight (g; * indicates decoration of the late La Tène tradition).*

Position/ Decoration	Rim	Neck	Shoulder	Body	Base (underside)	Unidentified zone	Total
Burnished lines				**1**:17/107		**2**:11/277	**3**:28/384
Combed						**16**:16/108	**16**:16/108
Combed curvilinear lines						**2**:5/54	**2**:5/54
Grooved lines	**2**:2/16					**3**:3/12	**5**:5/28
*Grooved pattern						**1**:1/16	**1**:1/16
Shallow tooled linear lines and nail impressions						**1**:1/7	**1**:1/7
Shallow tooled linear lines		**1**:1/4	**4**:5/34			**62**:66/345	**67**:72/383
*Shallow tooled linear lines and rouletting						**1**:17/110	**1**:17/110
*Shallow tooled linear lines and curvilinear lines						**1**:1/12	**1**:1/12
*Shallow tooled curvilinear lines						**5**:5/53	**5**:5/53
*Curvilinear lines, triple ring-stamp and rouletting						**1**:7/45	**1**:7/45
*Shallow tooled curvilinear pattern						**4**:6/142	**4**:6/142
*Shallow tooled pattern	**1**:2/10		**1**:1/17			**14**:14/97	**16**:17/214
*Wiped cross					**1**:2/65		**1**:2/65
Pinching						**2**:2/16	**2**:2/16
*Impressed double row of dots with shallow tooled linear line						**1**:1/12	**1**:1/12
Fingernail impression	**7**:7/54		**7**:10/143			**4**:4/26	**18**:21/223
Fingernail with fingertip	**4**:5/140		**3**:3/57			**9**:9/80	**16**:17/277
Fingertip	**29**:32/424		**11**:12/149			**47**:48/447	**87**:92/1020
Fingertip and scoring			**1**:1/23				**1**:1/23
Fingertip pattern						**2**:2/22	**2**:2/22
Applied cordon			**1**:1/11			**1**:1/4	**2**:2/15
Raised cordon with fingertip			**4**:4/73				**4**:4/73
Cabling	**2**:2/50						**2**:2/50
Scoring						**42**:54/997	**42**:54/997
TOTAL	**45**:50/694	**1**:1/4	**32**:37/507	**1**:17/107	**1**:2/65	**221**:274/2872	**301**:381/4249

had shell/organic inclusions. Only 5% of sherds (29 sherds, 219g) were burnished and 3% decorated (18 sherds, 250g); none had late La Tène motifs. The overall character of this assemblage was distinctly 'early', and it was probably deposited towards the beginning of the Middle Iron Age.

The assemblage from the secondary silts of Enclosure 15 was significantly larger, comprising over seven times the number of sherds than that recovered from the basal fills. Context [10998] yielded a total of 4489 sherds (31,574g), with a MSW of 7.0g. On first appearances the enclosure's two assemblages seem remarkably similar. For example, flint-gritted fabrics continued to dominate the assemblage, with only a minor fluctuation in their frequency (from 71% in [10999] to 69% in [10998]). In addition, the level of burnishing and decoration remained static with just 4% of sherds burnished (199 sherds, 2769g) and 4% decorated (189 sherds, 1830g). However, there were important changes to decorative styles, marked by the appearance of a few stamped and rouletted sherds, sherds with grooved curvilinear motifs and a single cross-decorated foot-ring base. As discussed above, these types of decoration belong to the Mucking-Crayford and Mucking-Oldbury style groups, both of which are unlikely to pre-date the second century BC.

Overall, a wide range of vessels were represented in [10998], including all major jar and bowl sub-classes. Jars marginally outnumbered bowls, though no single form dominated the group. Bowl-forms BD2 and BD3 were present in the assemblage, but accounted for just 21% of the form-assigned vessels – a low percentage similar to that from the primary silts.

The primary fills of Enclosure 16 had a dramatically different ceramic profile to that from the earlier deposits. The silts contained 918 sherds (9243g) with MSW of

10.2g. Whereas flint fabrics had dominated the previous assemblages, sandy fabrics now accounted for 49% of sherds (by weight). The frequency of burnishing was also much higher, with 20% of sherds being treated (180 sherds, 3105g), as opposed to the 4–5% in Enclosure 15. This sudden rise in sandy wares and burnished sherds reflects the fact that a large number of bowls were deposited in the primary fills of Enclosure 16, particularly those belonging to Forms BD2, 3 and 5: fineware bowls made exclusively in sandy wares, some of which were decorated with curvilinear motifs of the late La Tène tradition. Whilst a wide variety of bowl and jar forms had been deposited in Enclosure 15, the primary fills of Enclosure 16 were dominated by these 'S'-profiled forms. These accounted for an astounding 85% of the form-assigned pottery in this context, as opposed to the 35% in deposits from Enclosure 15.

It is unlikely that chronology and ceramic change are solely responsible for all the contrasts displayed between pottery in [10998] of Enclosure 15 and [10976] of Enclosure 16. Although Enclosure 16 was stratigraphically later than Enclosure 15, the silts of [10998] were still accumulating when the basal fill of Enclosure 16 was beginning to form. In other words, some of the pottery in these deposits is likely to be contemporary. It is argued, therefore, that the some of the distinctions between assemblages results from the use and deposition of different functionally-related pottery groups across different zones of the North Enclosure. The high frequency of fineware bowls in [10976] may suggest that Enclosure 16 saw practices of food preparation and consumption which were markedly different to those occurring in and around Enclosure 15. The 'balanced' frequency of different vessel forms in the Enclosure 15 silts suggests that a range of cooking and serving activities occurred in this space. However, the predominance of fineware bowls in the Enclosure 16 assemblage implies that this compound was reserved for the serving and consumption of food stuffs, and was possibly an arena in which fineware bowls were used, displayed, and ultimately selectively (?) deposited.

Stratigraphically, the latest assemblage to be analysed from the North Enclosure derived from the secondary silts of Enclosure 16, [10975]. This yielded 3941 sherds (28,720g) with MSW of 7.3g. The assemblage was similar in character to that from [10998], Enclosure 15. Flint-gritted fabrics became dominant once again, with 75% of material (by weight) falling within this fabric group; the highest percentage from all of the enclosure ditch contexts. Given that [10975] is late in the enclosure sequence, the rise in flint-gritted wares is at odds with the general trend towards an increasing use of sand-tempered pottery over the course of the Middle Iron Age. Although this localised reversal does not alter wider patterns of fabric change, it does highlight the danger of relying too heavily on fabric frequencies to date Iron Age sub-assemblages.

The shift in fabric frequency was also coupled with a change in form representation, though the results were different to expected. Given the rise in flint-gritted wares, one would expect there to have been an increased representation of jars. However, no jar forms were identified in [10975] and Bowl-forms BD2 and 3 continued to dominate (accounting for 91% of form-assigned vessels). The absence of jars is probably more apparent than real, and reflects the difficulty in establishing vessel forms from fragmented pottery groups, a MSW of 7g being very low for a Middle Iron Age pottery assemblage. Instead, an increased emphasis on jars may be inferred from the lower incidence of burnishing in the sub-enclosure pottery. In total, 14% of sherds from this horizon were burnished (533 sherds, 4953g), giving a net fall of 6% from the primary silts. As established above, burnishing tends to occur on a restricted range of vessels, principally sand-tempered bowls and small jars. A decline in the incidence of burnishing could therefore indicate an overall fall in the number of bowls relative to jars; a trend not implied by the vessel-form data alone. Assuming this pattern to be true, it suggests that a much wider range of vessel types was used and deposited during the later history of Enclosure 16. Indeed, the differences between the two stratified pottery groups may reflect the changing function or status of the enclosure. Whilst pottery from the primary silts reflected practices restricted to the serving and consumption of foodstuffs, the expanded repertoire of ceramics in the secondary silts implies that a more generalised range of cooking and eating practices occurred; practices probably involving a variety of coarse and fine vessels for both cooking and serving.

Overall, the analysis of the different ditch-fill assemblages has enabled changes to fabrics, forms and surface treatment to be defined across the stratigraphic sequence. Stepping back from this detail, it is clear that there are a series of basic changes to the ceramic repertoire over time. Though some of these contrasts are related to, and/or enhanced by enclosure function, status or the selective deposition of particular vessel classes, there are underlying temporal trends. By defining the traits that are chronologically sensitive, the pottery from the enclosure sequence can be used as a benchmark to gauge the date of other Middle Iron Age pottery assemblages. In other words, the 'ceramic profile' of the remaining pottery groups can be compared against the large stratified ditch-assemblages from the North Enclosure, and assigned to phase accordingly. The resolution offered by this method is far from perfect, since sub-dividing Middle Iron Age pottery assemblages is notoriously difficult, especially without the aid of independent dating evidence, or in most cases, stratigraphic relationships. At best, this approach will allow a distinction to be drawn between 'earlier' or 'later' phases of the Middle Iron Age, to which broad dates have been assigned. The traits identified from the North Enclosure sequence are as follows:

The 'earlier' Middle Iron Age ceramic profile: *c.* late fourth/third to second century BC

(based on the overall character of the Enclosure 15 ditch assemblage)

- High percentage of flint-gritted fabrics (above 70% by weight)
- Low incidence of burnished wares; generally under 20% (by sherd count)
- Low frequency of Forms BD2, 3 and 5
- Low frequency of pedestal/foot-ring bases
- Absence of late La Tène decoration

The 'later' Middle Iron Age ceramic profile: *c.* second–mid first century BC

(based on the overall character of the Enclosure 16 assemblage)

- Sandy wares equal or dominant to flint-gritted wares (*c.* 50% or more by weight).
- Higher incidence of burnishing; generally over 20% (by sherd count)
- High frequency of Forms BD2, 3 and 5
- High frequency of pedestal/foot-ring bases.
- Presence of late La Tène decoration.

Inevitably, there are dangers inherent in this strategy. The frequency of forms, fabrics and modes of surface treatment are not just chronologically connected, but can fluctuate according to functionally-related practices and differential deposition. This problem is particularly acute when broken pottery from different cooking and serving activities is deposited in select areas of the site, be they different structures, pit-groups or ditches. Admittedly, there are no straightforward one-to-one correlations, and only by considering a combination of traits can one reduce the risk of mis-assignment.

Pottery from Other Contexts

Data relating to the remaining pottery analysed from the EH/BM-phase of post-excavation is presented in two tables. Table 5.8 quantifies assemblages from features within the North Enclosure, while Table 5.9 displays the data from a range of structures, pits and ditches from the rest of the site.[2] Each feature is dated by the nature of its ceramic profile. For the most part, this method appears to have been successful. Features with 'later' ceramic profiles have tended to be located in areas of the site which are known to have continuity into the Late Iron Age, such as the ABC and Banjo enclosures. Likewise, features with 'earlier' profiles also seem to cluster in some areas, or can be shown to be early in a sequence of stratigraphic relationships with other ditches and enclosures. Inevitably, one or two contexts have displayed conflicting profiles. For example, in Roundhouse 88 the very high percentage of flint-tempered fabrics suggested an 'early' date, whilst the presence of a late La Tène decorated sherd indicated a 'later' one. However, roundhouse assemblages may be more susceptible to these problems, particularly in paired groupings where one structure may have had a specific function, such as a cooking hut.

Catalogue of Illustrated Vessels (Fig. 5.5)

POTTERY FROM THE NORTH ENCLOSURE

1. North Enclosure, main enclosure ditch, primary silts [10999], 1860N × 1030E. Bowl, Form BD3; Fabric S2.
2. North Enclosure, main enclosure ditch, primary silts [10999], 1910N × 1035E. Rim sherd; Fabric F1.
3. North Enclosure, main enclosure ditch, primary silts [10999], 1910N × 1025E. Base-form D; Fabric F2.
4. North Enclosure, main enclosure ditch, primary silts [10999], 1775N × 775E. Bowl, Form BC; Fabric S2. Slow-wheel turned?
5. North Enclosure, main enclosure ditch, primary silts [10999], 1775N × 775E. Base-form M. Burnished; Fabric S1.
6. North Enclosure, main enclosure ditch, primary silts [10999], 1893N × 905E. Burnished jar, Form JB2; Fabric F2.

Table 5.8. Basic quantification of pottery from selected features within the North Enclosure.

Feature	Contexts analysed	No/Wt. (g) sherds	MSW	% burnished by Wt.	Fabric % by wt			Forms, by vessel count ()		Rim EVE	Late La Tène wares?	Cross-decorated bases?	Ceramic Profile
					Flint	Sand	Organic/ shell	Rim	Base				
RH89	11442, 11444, 11446, 11504, 11508, 11510	179/2420	13.5g	55	13	87	-	BD3(2), JC4(1)	Pinched(1), Pedestal(3)	1.70	Y	-	'Later' MIA
RH97	10959, 10967, 11865, 11871, 11889	777/4794	6.2g	10	94	6	>1	BC2(2), BD3 (1)	Flat(3), Stepped(1)	1.60	-	-	'Earlier' MIA
RH110	11284, 11996, 11998, 12100, 12102, 12104, 12106, 12110, 12112, 12114, 12118, 12120, 12122, 12312	51/281	5.5g	19	93	7	-	-	-	0.05	-	-	'Earlier' MIA
FP85	10951, 11022, 1049, 11024	162/1004	6.2g	2	95	5	-	-	Flat(3)	0.70	-	-	LBA/EIA?
Pit 10910	10909	139/925	6.7g	6	86	14	-	-	Pinched(2)	0.15	-	-	'Earlier' MIA
Pit 10920	10919	429/3524	8.2g	27	40	60	>1	BC1(1), BD1(2), BD3(6), BD5 (4)	Flat(4), Pinched(2), Stepped(1), Pedestal(8), Omphalos(1)	2.80	Y	Y	'Later' MIA
Pit 10922	10921	153/1173	7.7g	50	25	75	-	BD1 (1)	Pinched(1), Pedestal(4)	0.40	Y	Y	'Later' MIA
Pit 10924	10923	185/1548	8.4g	55	15	85	-	BD3(1), DA2 (1), JC2 (2)	Flat(3), Pinched(1), Stepped(4), Pedestal (2)	1.20	-	-	'Later' MIA
Pit 10934	10935	91/735	8.1g	51	37	63	-	-	Flat(1)	0.25	Y	-	'Later' MIA

Table 5.9. Basic quantification of pottery from selected features across the site.

Feature	Contexts analysed	No/.Wt. (g) sherds	MSW	% burnished by Wt.	Fabric % by wt			Forms, by vessel count ()		Rim EVE	Late La Tène wares?	Cross-decorated bases?	Ceramic Profile
					Flint	Sand	Organic/ shell	Rim	Base				
RH1	8, 10, 12, 28, 102, 104, 106, 137, 141	622/5959	9.6g	66	23	75	2	BC2(1), BD1(1), BD2(2), BD3(4), JC3(3)	Flat(1), Stepped(2), Pinched(1), Foot-ring (10)	2.90	Y	-	'Later' MIA
RH20	14146–7, 14178, 14180	473/5451	11.5g	31	21	65	14	-	Flat(1), Stepped(2), Foot-ring(4)	1.95	Y	-	'Later' MIA
RH24	14146–7, 14213, 14231, 14237, 14243, 14246, 14256–7, 14260, 14266, 14268	280/2552	9.1g	72	11	87	1	-	Stepped (3) Foot-ring (6)	2.20	Y	Y	'Later' MIA
RH25	1907, 1926	928/10,373	10.9g	64	11	72	17	BC7(1), BD2(1), BD3(1), JB2 (1), JC2 (1)	Flat(6), Stepped(6), Pinched(1), Foot-ring (9)	2.75	Y	Y	'Later' MIA
RH44	7710, 7718	62/592	9.5g	71	57	43	-	-	-	0.40	-	-	'Earlier' MIA
RH45	7730	528/4034	7.6g	29	91	6	3	BD3(1), BC3(1)	Flat(2), Pinched(1), Beaded(1)	2.10	-	-	'Earlier' MIA
RH51	5007, 5039, 5107–8	85/610	7.2g	9	48	47	5	BC2(2), BC3(1)	Flat(1)	0.40	-	-	'Earlier' MIA
RH64	12438,12446–8	123/876	7.1g	35	64	26	9	-	Stepped(1)	0.75	-	-	'Earlier' MIA
RH77	4176–7	193/1279	6.6g	7	94	5	>1	-	-	0.50	-	-	'Earlier' MIA
RH79	5904, 5921, 5923, 5925	194/1516	7.8g	40	27	60	12	BD2 (2), BD3(1)	Flat(1), Foot-ring (1)	0.80	-	Y	'Later' MIA
RH82	6099, 6101, 6103, 6175, 6177	623/6094	9.8g	36	71	29	>1	-	Flat(3), Stepped(4), Pinched(1), Foot-ring(1)	1.85	-	-	'Earlier' MIA
RH88	10161, 10165, 10167, 10169, 10171, 10179, 10181, 10183, 10187, 10189	826/5966	7.2g	17	96	4	>1	BC2(4)	Flat(6), Stepped(4), Pinched(1), Foot-ring(1)	1.50	Y	-	'Later' MIA
RH90	10192	291/2098	7.2g	22	8	92	>1	JC3(1)	-	1.20	-	-	'Later' MIA
RH100	10315	197/1606	8.2g	42	46	54	>1	-	Flat(2), Stepped(1), Foot-ring(1)	0.80	Y		'Later' MIA
RH101	10365, 10367, 10369	513/5546	10.8g	11	88	11	>1	BC2(1), JC2(2), JC3(1), JD1(1)	Flat(2), Stepped(4), Pinched(2)	1.95	-	-	'Earlier' MIA
RH105	10435, 10517, 10521	70/665	9.5g	21	65	35	-	-	Flat (3), Stepped(1)	0.15	-	-	'Earlier' MIA
RH108	25423, 25431, 25437, 25441, 25445	15/68	4.5g	54	97	3	-	-	-	-	-	-	LBA/EIA
RH109	11284, 25737, 26078	3/24	-	-	100	-	-	-	-	-	-	-	LBA/EIA
Pit 10508	10507	150/1814	12.1g	34	89	10	>1	BA3(1), JC2(1)	Flat(3)	0.90	-	-	'Earlier' MIA
Pit 25063	25062	178/1102	6.2g	18	77	22	>1	-	Flat(1), Stepped(1), Pinched(1), Foot-ring(1)	1.10	-	-	'Earlier' MIA
Pit 25564	25563	181/7830	43.3g	-	100			-	Flat(6)	0.25	-	-	'Earlier' MIA
Pit 5840	5839	72/1052	14.6g	44	78	22	-	BE1(1), JB3(1)	Foot-ring(2)	0.75	-	-	'Earlier' MIA
Pit 5794	5793	79/968	12.3g	41	2	81	17	BD5(1)	Flat(1), Stepped(2)	0.50	-	-	'Later' MIA
Ditch 10186	10185	59/256	4.3g	2	85	15	-	BA3(1)	-	0.20	-	-	'Earlier' MIA
Ditch 10454	10452, 10453	36/265	7.4g	31	63	37	-	-	-	0.15	-	-	'Earlier' MIA
Ditch 10494	10493	4/20	5.0g	-	20	80	-	-	-	-	-	-	MIA

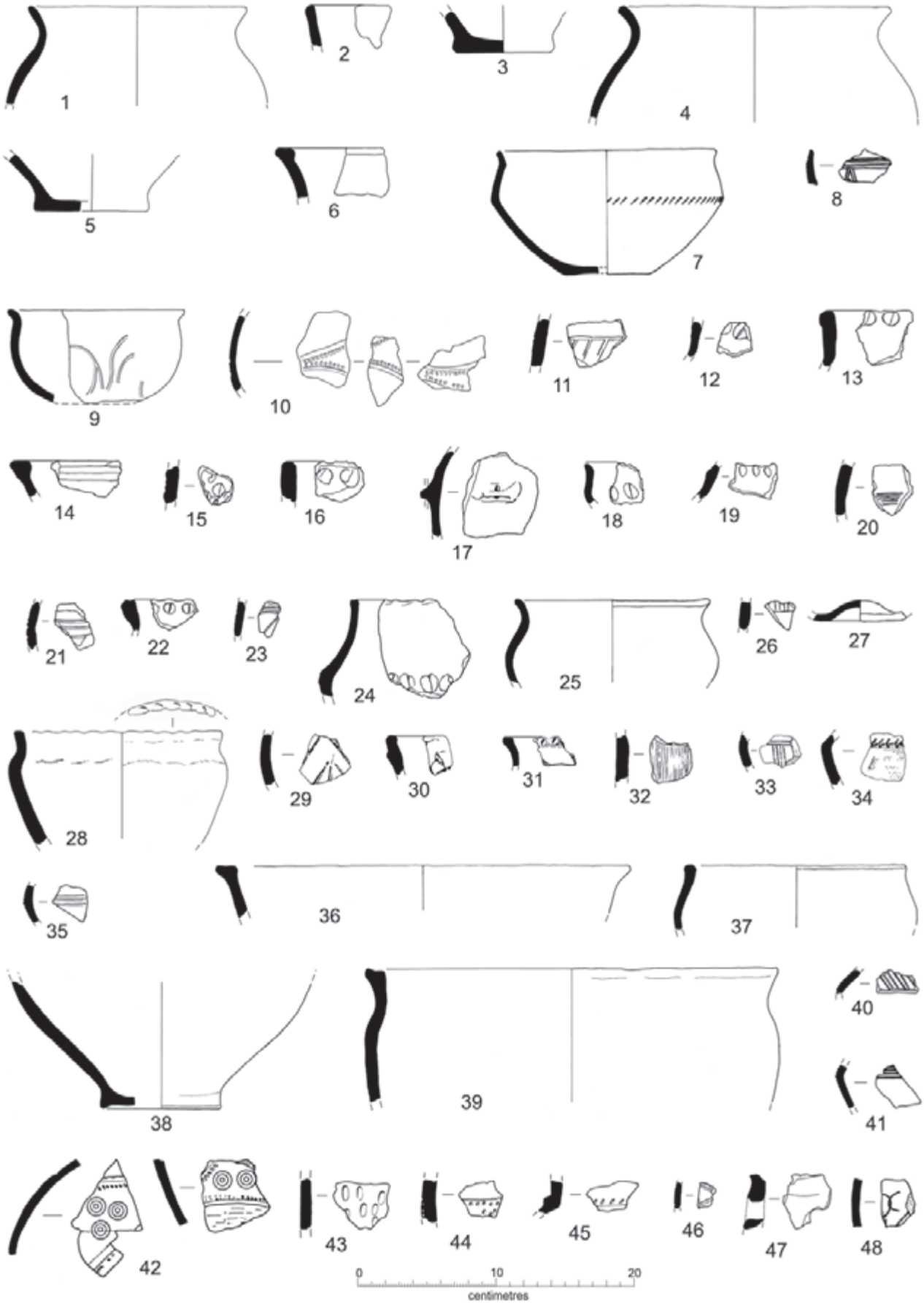
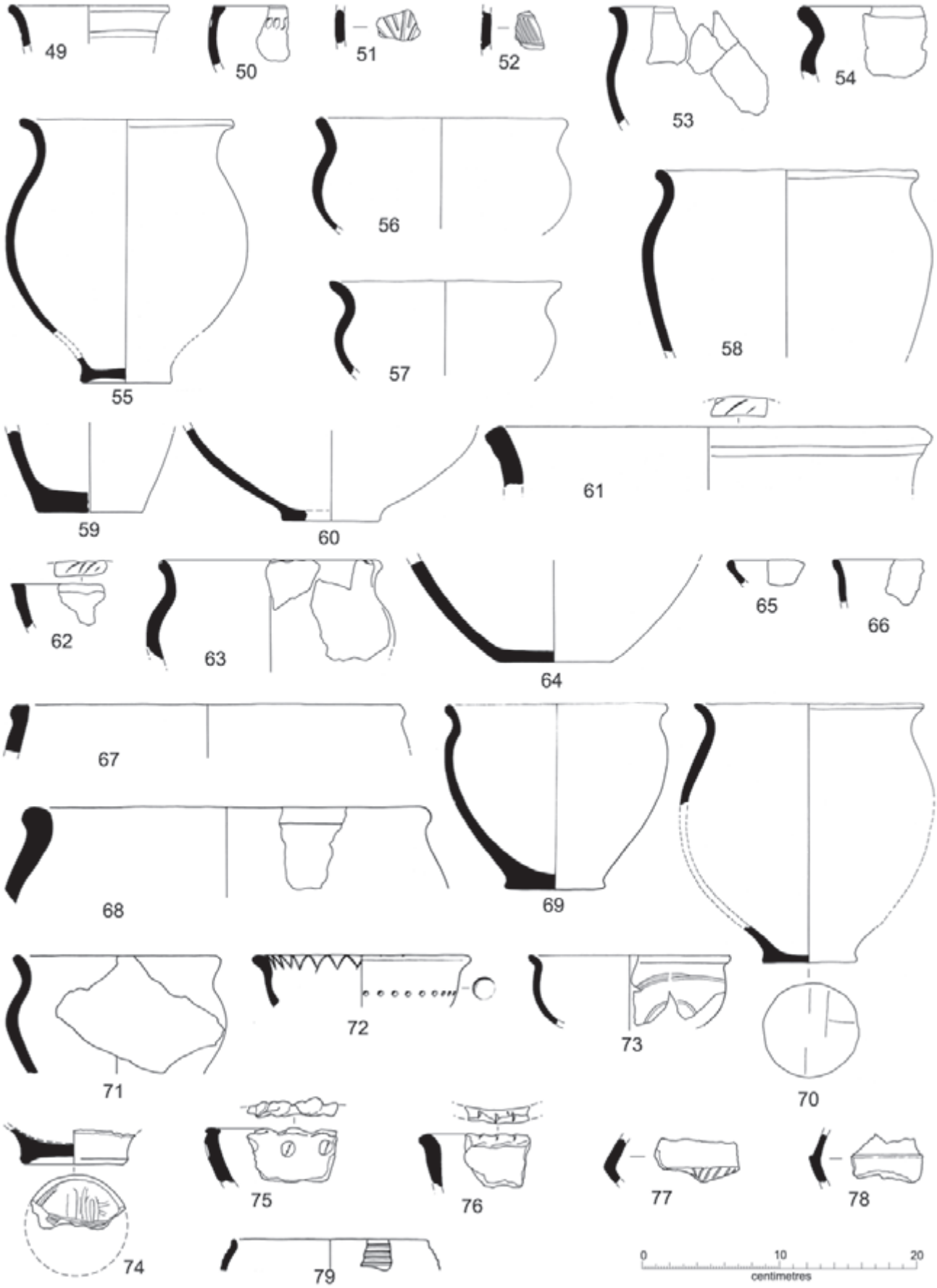


Figure 5.5. Pottery catalogue illustrations (detailed in text) (continued over the next seven pages).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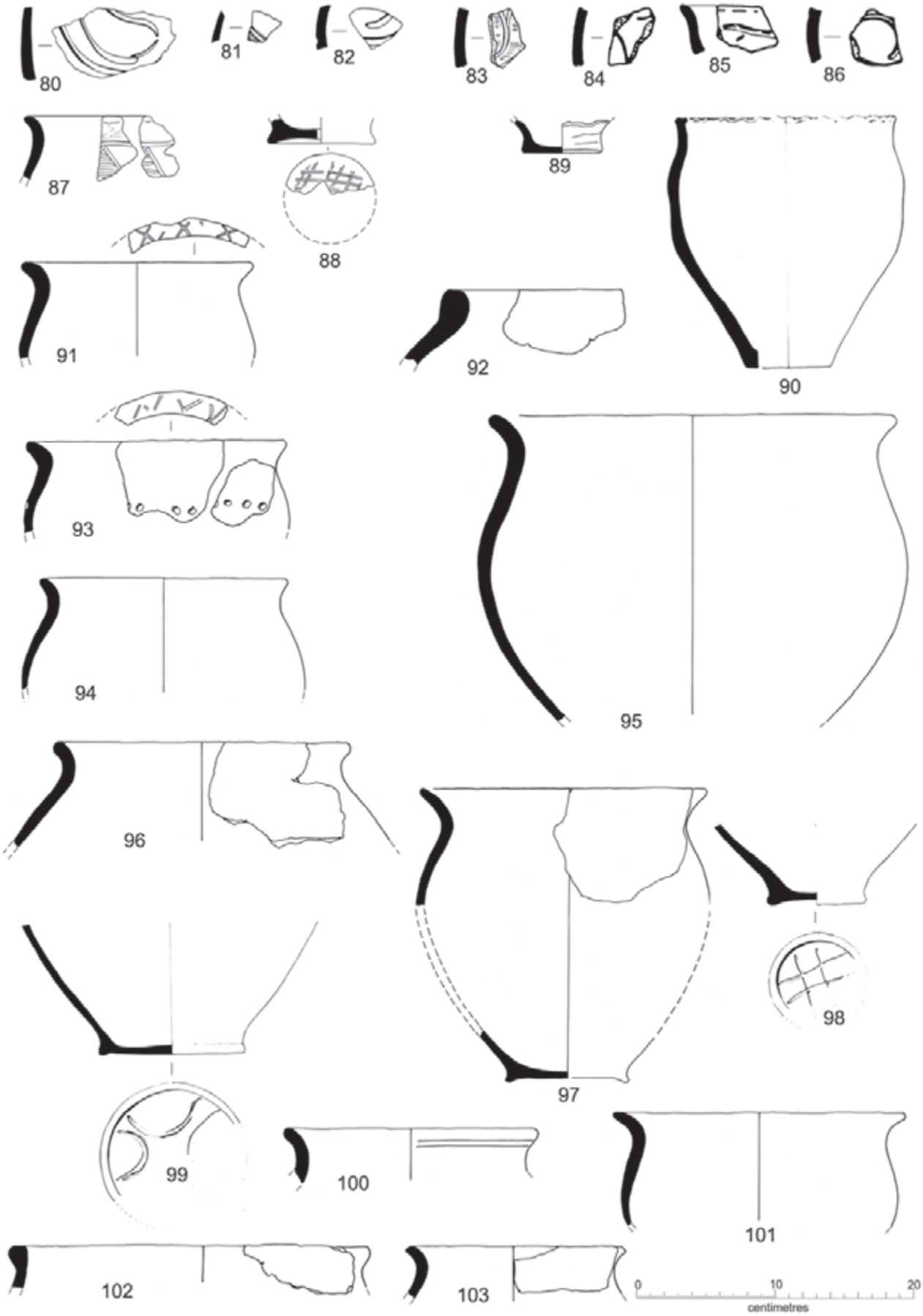
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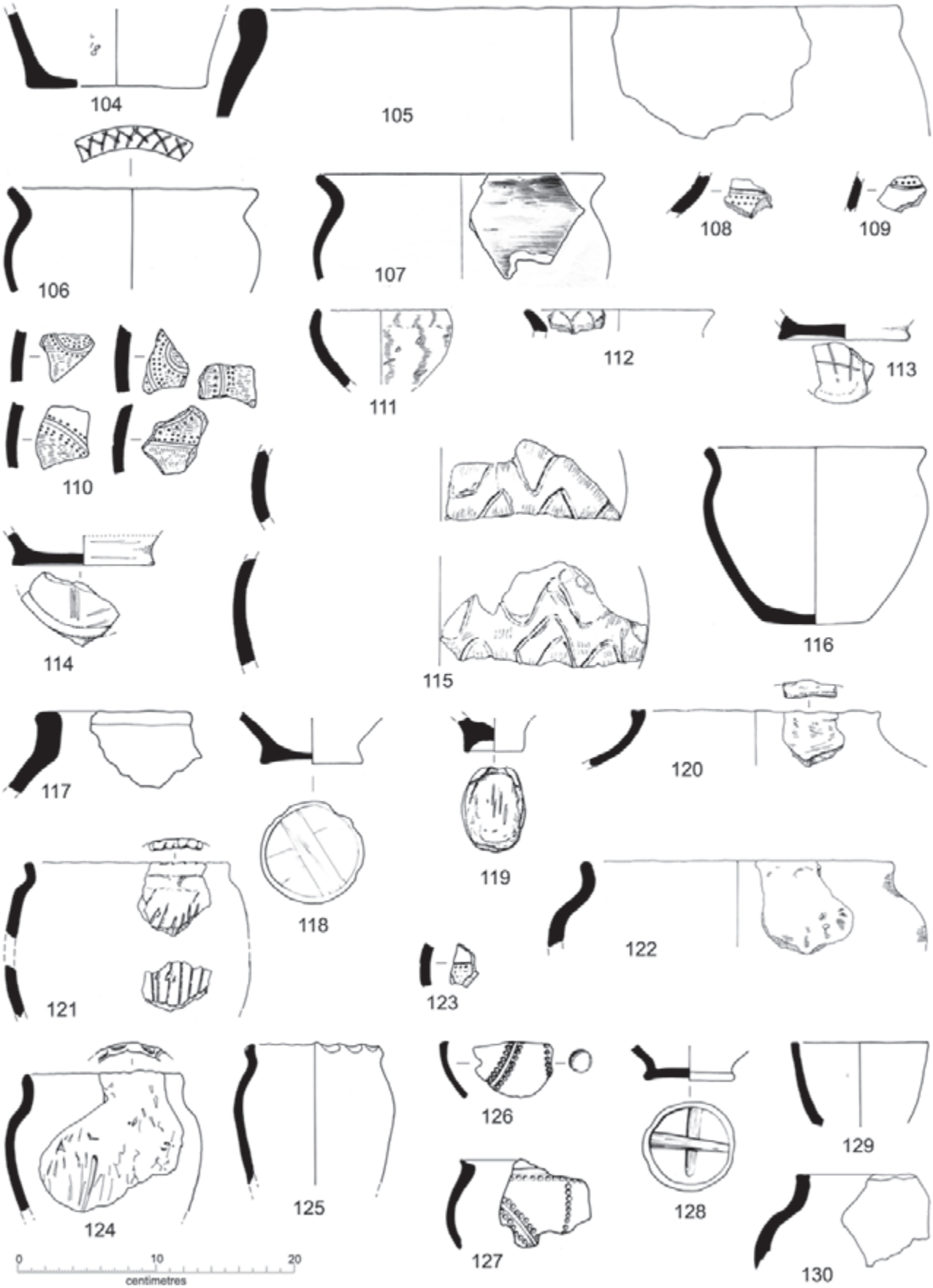
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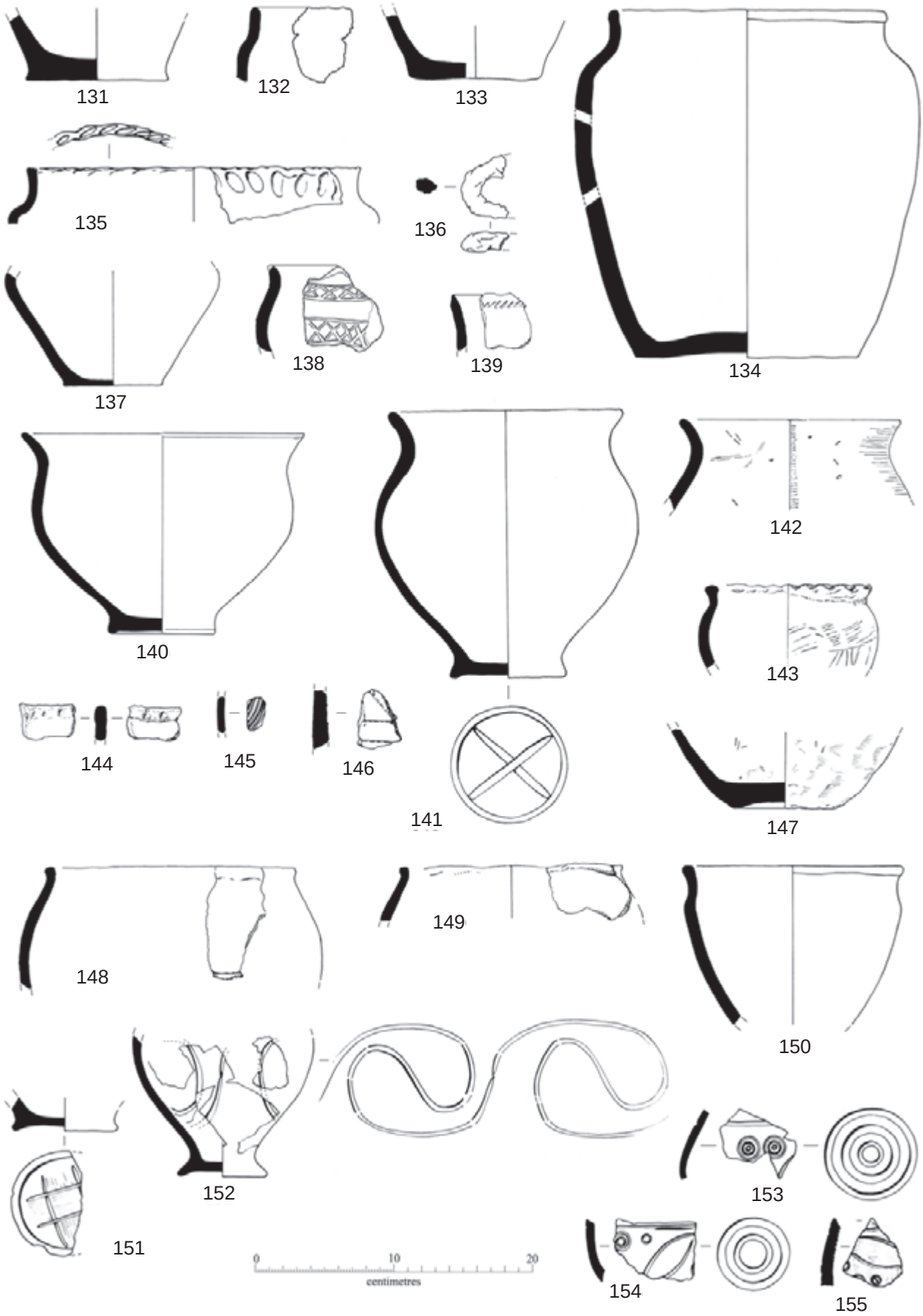
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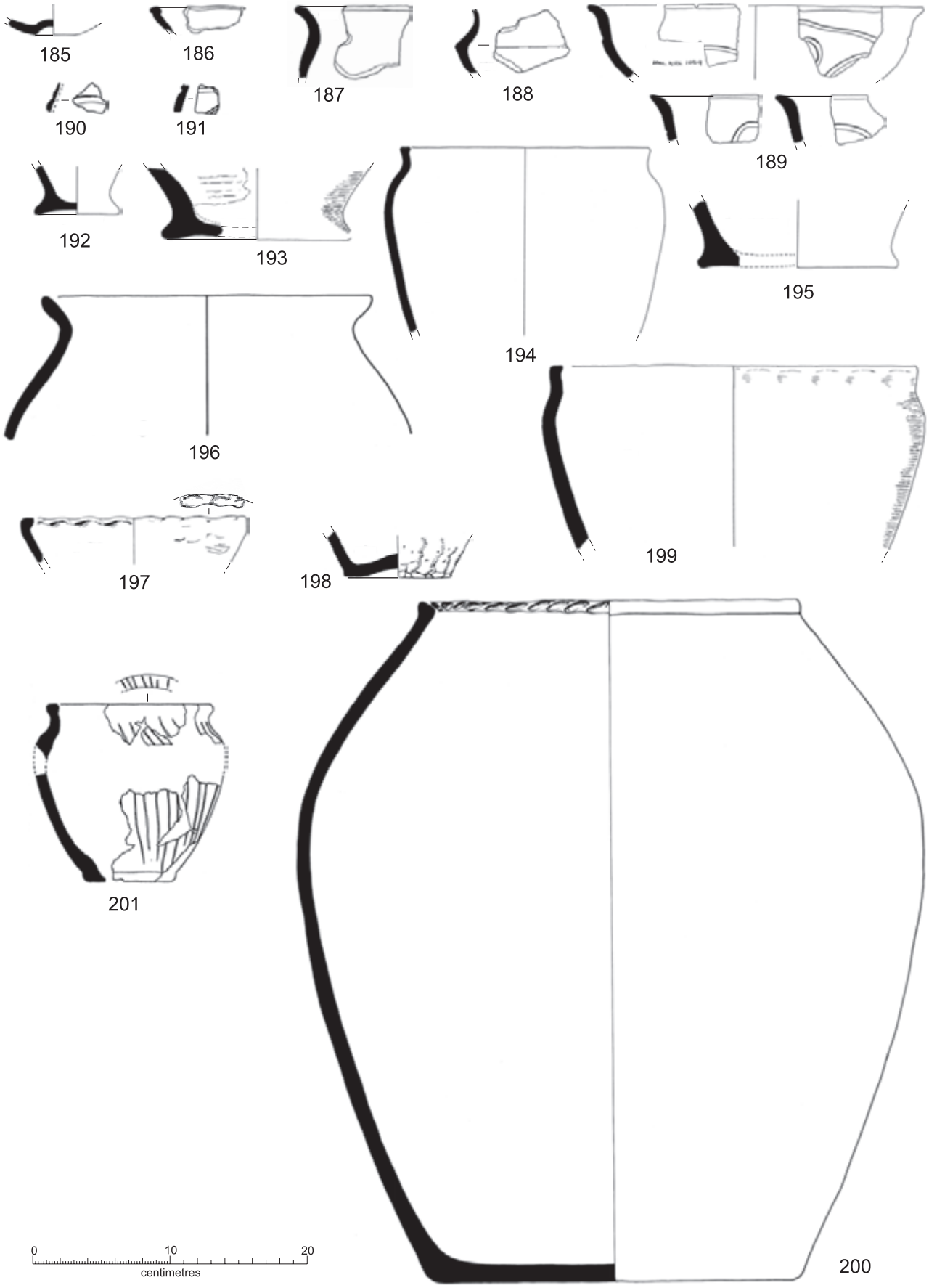
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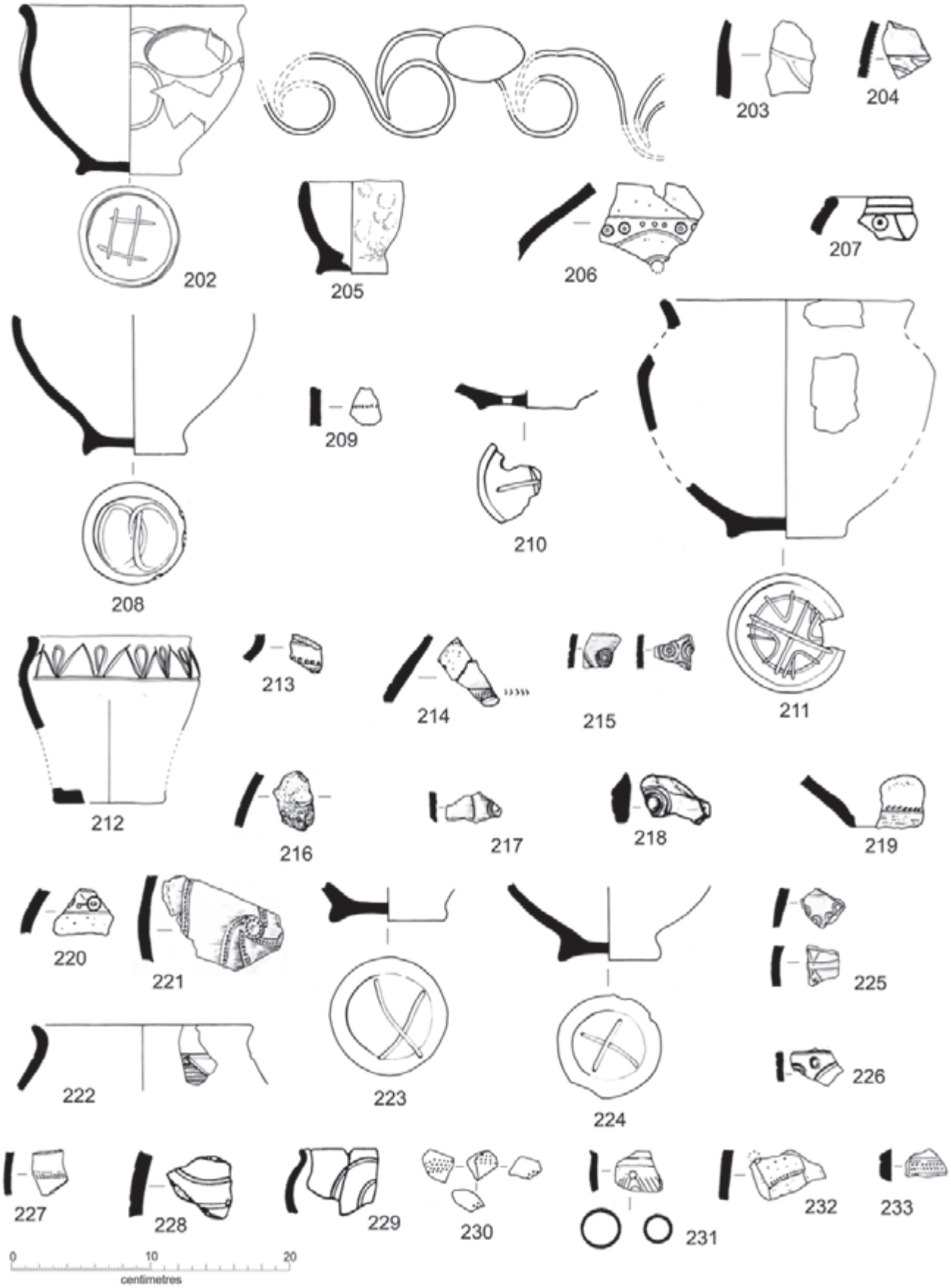
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7. North Enclosure, main enclosure ditch, primary silts [10999], 1748N × 1044E. Residual Late Bronze Age/ Early Iron Age bowl with closely spaced diagonal fingernail impressions on carination. Form BC5; Fabric F1.
8. North Enclosure, main enclosure ditch, primary silts [10999], 1903N × 985N. Residual Late Bronze Age/ Early Iron Age carinated body sherd with fine incised chevron motif below four narrow girth grooves. Burnished; Fabric F1.
9. North Enclosure, main enclosure ditch, secondary silts [10998], 1665N × 1030E. Burnished bowl, Form BD5. Decorated with free-flowing incised curvilinear pattern; Fabric S3.
10. North Enclosure, main enclosure ditch, secondary silts [10998], 1893 × 1053E. Burnished sherds from a globular vessel displaying elements of an incised formalised arc motif flanked by reversed S-rouletting or stamps? Fabric FS.
11. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 910E. Body sherd decorated with incised rectilinear pattern; Fabric FS.
12. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 930E. Body sherd decorated with a deep fingertip impression bearing nail marks; Fabric S1.
13. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 917E. Rim sherd decorated on the exterior rim-edge with a row of fingertip impressions; Fabric F2.
14. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 922E. Rim of jar with internally expanded lip. Form JB3; Fabric S1.
15. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 925E. Body sherd covered with fingertip impressions bearing nail marks; Fabric F2.
16. North Enclosure, main enclosure ditch, secondary silts [10998], 1902 × 968E. Body sherd decorated with fingertip impressions; Fabric FS.
17. North Enclosure, main enclosure ditch, secondary silts [10998], 1910 × 1025E. Perforated lug handle; Fabric F2.
18. North Enclosure, main enclosure ditch, secondary silts [10998], 1910 × 1050E. Rim sherd decorated with a row of fingertip impressions on the shoulder; Fabric F2.
19. North Enclosure, main enclosure ditch, secondary silts [10998], 1908 × 1008E. Rim sherd decorated with a row of fingertip impressions on the exterior rim-edge; Fabric F2.
20. North Enclosure, main enclosure ditch, secondary silts [10998], 1910N × 1050E. Body sherd decorated with combed horizontal lines; Fabric F2.
21. North Enclosure, main enclosure ditch, secondary silts [10998], 1910N × 1025E. Body sherd decorated with incised horizontal lines; Fabric S1.
22. North Enclosure, main enclosure ditch, secondary silts [10998], 1910N × 1050E. Rim sherd decorated with fingertip impressions on the exterior rim-edge; Fabric F2.
23. North Enclosure, main enclosure ditch, secondary silts [10998], 1906N × 1000E. Body sherd decorated with incised rectilinear pattern; Fabric F2.
24. North Enclosure, main enclosure ditch, secondary silts [10998], 1900N × 1055E. Bowl of Sub-class BC, decorated with a row of fingertip impressions on the rim-top and fingertip impressions bearing nail marks on the shoulder; Fabric F2.
25. North Enclosure, main enclosure ditch, secondary silts [10998], 1906N × 1004E. Burnished bowl, Form BD3; Fabric S3.
26. North Enclosure, main enclosure ditch, secondary silts [10998], 1860N × 1058E. Body sherd decorated with an incised rectilinear pattern; Fabric F1.
27. North Enclosure, main enclosure ditch, secondary silts [10998], 1657N × 1026E. Base-form Q. Burnished; Fabric S1.
28. North Enclosure, main enclosure ditch, secondary silts [10998], 1646N × 826E. Jar, Form JC1, decorated on the rim-top with fingertip impressions bearing nail marks; Fabric S1.
29. North Enclosure, main enclosure ditch, secondary silts [10998], 1664N × 801E. Body sherd decorated with incised rectilinear pattern; Fabric F1.
30. North Enclosure, main enclosure ditch, secondary silts [10998], 1655N × 832E. Rim sherd with pinching on the neck; Fabric S1.
31. North Enclosure, main enclosure ditch, secondary silts [10998], 1644N × 870E. Rim sherd with fingertip impressions on exterior rim-edge; Fabric F2.
32. North Enclosure, main enclosure ditch, secondary silts [10998], 1674N × 778E. Body sherd decorated with linear combing; Fabric FS.
33. North Enclosure, main enclosure ditch, secondary silts [10998], 1718N × 758E. Body sherd decorated with incised rectilinear pattern; Fabric S1.
34. North Enclosure, main enclosure ditch, secondary silts [10998], 1721N × 762E. Body sherd decorated with a row of fingernail impressions on the shoulder; Fabric FS.
35. North Enclosure, main enclosure ditch, secondary silts [10998], 1735N × 761E. Burnished body sherd decorated with incised horizontal lines on the shoulder; Fabric F1.
36. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 905E. Rim sherd; Fabric F2.
37. North Enclosure, main enclosure ditch, secondary silts [10998], 1993N × 910E. Jar, Form JC2; Fabric S1.
38. North Enclosure, main enclosure ditch, secondary silts [10998], 1910N × 1035E. Base-form M. Burnished; Fabric S2.
39. North Enclosure, main enclosure ditch, secondary silts [10998], 1664N × 801E. Jar, Form JD4; Fabric V1.
40. North Enclosure, main enclosure ditch, secondary silts [10998], 1910N × 1015E. Residual Late Bronze Age/ Early Iron Age sherd, decorated with a grooved rectilinear pattern above the shoulder; Fabric F2.
41. North Enclosure, main enclosure ditch, secondary silts [10998], 1650N × 852E. Residual Late Bronze Age/ Early Iron Age body sherd with incised horizontal lines on shoulder; Fabric F2.
42. North Enclosure, main enclosure ditch, secondary silts [10998], 1900N × 1055E. Body sherds of a globular vessel decorated with a grooved standing/interlocking arc-motif, flanked by reverse 'S'-stamps/rouletting. The interstices contain triads of triple concentric circle-stamps. Smoothed surface. Fabric F2.
43. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 905E. Body sherd decorated with fingertip impressions; Fabric S1.
44. North Enclosure, main enclosure ditch, secondary silts [10998], 1649N × 855E. Body sherd decorated with a double row of impressed dots below an incised linear line; Fabric F1.
45. North Enclosure, main enclosure ditch, secondary silts [10998], 1893N × 905E. Residual Late Bronze Age body sherd with fingernail impressed neck-cordon; Fabric FS.
46. North Enclosure, main enclosure ditch, secondary silts [10996], 1648N × 859E. Residual Late Bronze body sherd decorated with incised lines; Fabric S1.
47. North Enclosure, main enclosure ditch, secondary silts [10996], 1644N × 870E. Perforated body sherd; Fabric F2.
48. North Enclosure, main enclosure ditch, 1893N × 905E. Body sherd decorated with shallow curvilinear grooves and, possibly, incised chevrons. Sandy fabric with crushed flint filler.
49. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1836N × 876E. Bowl, Form BD5, decorated with broad shallow-tooled curvilinear groove; Fabric S3.

50. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1869N × 872E. Bowl, Form BA3, decorated with a row of fingernail impressions below the rim; Fabric F2.
51. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1884N × 805E. Residual Late Bronze Age body sherd decorated with shallow, wide divergent grooves; Fabric F1.
52. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1885N × 809E. Residual Late Bronze Age body sherd, decorated with diagonal shallow tooling between parallel grooves; Fabric F1.
53. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1801N × 866E. Burnished bowl, Form BD. Slow-wheel turned? Fabric S1.
54. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1795N × 815E. Jar, Form JC2; Fabric F2.
55. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1845N × 875E. Burnished bowl, Form BD3. Base-form N; Fabric S2.
56. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1836N × 876E. Burnished bowl, Form BD3. Slow-wheel turned? Fabric S1.
57. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1802N × 800E. Burnished bowl, Form BD3. Slow-wheel turned? Fabric S3.
58. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1886N × 825E. Burnished jar, Form JC3; Fabric S1.
59. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1845N × 875E. Base-form B; Fabric S1.
60. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1805N × 785E. Base-form D, with faint vertical burnished striations; Fabric S1.
61. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1840N × 780E. Jar, Sub-class JC, decorated with cabling on rim-top; Fabric F3.
62. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1890N × 870E. Rim with low cabled decoration on rim-top; Fabric F2.
63. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1845N × 875E. Jar, Form JC3 with fingertipping on rim-top; Fabric S1.
64. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1805N × 785E. Base, Form B, with faint vertically burnished striations; Fabric S1.
65. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1807N × 871E. Dish, Form DA or possibly a lid; Fabric FS.
66. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1885N × 865E. Residual Late Bronze Age. Sub-class JD; Fabric F2.
67. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1881N × 826E. Jar, Form JC3; Fabric F2.
68. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1865N × 865E. Jar, Form JD4; Fabric F2.
69. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1864N × 783E. Bowl, Form BD2. Slow wheel-turned? Fabric S1.
70. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1887N × 841E. Bowl, Form BD3. Base From D, with very faint wiped cross on base; Fabric S2.
71. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1795N × 839E. Burnished bowl, Form BD3; Fabric S2.
72. North Enclosure, sub-enclosure (No. 16) ditch, primary silts [10796], 1828N × 878E. Bowl, Form BD5, decorated with incised chevrons on the interior rim-edge, and a row of impressed dots on the shoulder.
73. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1885N × 833E. Bowl, Form BD5, decorated with free-flowing curvilinear pattern; Fabric S1.
74. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1810N × 874E. Burnished base, Form N, decorated with a wiped cross on underside; Fabric S1.
75. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1885N × 809E. Rim sherd decorated with fingertip impressions along the rim-top and fingertip impressions in a row on the shoulder of the vessel; Fabric F2.
76. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1846N × 873E. Rim sherd decorated with a row of fingernail impressions along the rim-top; Fabric S1.
77. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1885N × 865E. Body sherd with incised linear decoration on underside of carination; Fabric F2.
78. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1885N × 809E. Burnished sherd with ridged carination; Fabric Fl.
79. North Enclosure, sub-enclosure (No. 16) ditch, secondary silts [10795], 1807N × 871E. Rim sherd, haematite-coated with shallow tooled linear grooves; Fabric F2.
80. North Enclosure, sub-enclosure (No. 16) ditch, [10793], 1836N × 880E. Burnished body sherd with shallow tooled curvilinear decoration; Fabric F2.
81. North Enclosure, sub-enclosure (No. 16) ditch, [10793], 1801N × 866E. Residual Late Bronze Age body sherd with shallow tooling and external haematite coating; Fabric F1.
82. North Enclosure, sub-enclosure (No. 16) ditch, [10793], 1793N × 828E. Burnished body sherd with shallow-tooled curvilinear decoration; Fabric S1.
83. North Enclosure, sub-enclosure (No. 16) ditch, 1795N × 846E. Burnished body sherd with broad shallow curvilinear grooves. Sand-tempered.
84. North Enclosure, sub-enclosure (No. 16) ditch, 1795N × 846E. Body sherd with curvilinear groove.
85. North Enclosure, sub-enclosure (No. 16) ditch, 1836N × 876E. Bowl, Form BD5, decorated with shallow curvilinear grooves and, possibly, diagonal lines. Sandy fabric with very fine crushed flint.
86. North Enclosure, sub-enclosure (No. 16) ditch, 1846N × 873E. Body sherd decorated with curvilinear groove. Sand-tempered.
87. North Enclosure outer extension ditch, [10449], 2095N × 635E. Rim sherd with shallow tooled chevron filled with incised horizontal lines; Fabric S2.
88. North Enclosure outer extension ditch, [10449], 2066N × 642E. Base, Form N, decorated with a burnished lattice design on underside; Fabric S1.
89. North Enclosure outer extension ditch, [10450], 2100N × 655E. Burnished base, Form D with wiped cross on underside; Fabric S2.
90. North Enclosure outer extension ditch, [10542], 2090N × 753E. Jar, Form JC2, Base-form B. Outside surface heavily scored and rim decorated with irregular fingertipping; Fabric S1.

Pottery from Roundhouse 1

91. Roundhouse 1, [8], 135N × 23E. Burnished bowl, Form BD5 decorated with a faintly incised cross motif on the interior rim-edge; Fabric S1.
92. Roundhouse 1, [10]. Rim sherd, possible Bronze Age; Fabric F3.
93. Roundhouse 1, [10], 92N × 12E. Burnished bowl, Form BD3, decorated with a row of impressed dimples above the shoulder and shallow incised crosses on the interior rim-edge; Fabric S1.
94. Roundhouse 1, [10], 95N × 13E. Burnished bowl, Form BD3; Fabric S1.
95. Roundhouse 1, [10], 93N × 16E. Burnished jar, Form JC3; Fabric S1.
96. Roundhouse 1, [104], 125N × 0E. Bowl, Form BD3; Fabric S1.

97. Roundhouse 1, [104]. Bowl, Form BD3, Base-form N; Fabric S3.
98. Roundhouse 1, [106], 120N × 10E. Burnished base, from N, decorated with shallow grooved cross-hatch/double-cross motif; Fabric S1.
99. Roundhouse 1, [106], 120N × 10E. Base, Form M, decorated on underside with a shallow tooled arc motif; Fabric S1.
100. Roundhouse 1, [137]. Burnished rim sherd with a horizontal ridge below the rim; Fabric S2.
101. Roundhouse 1, [137]. Burnished bowl, Form BD3; Fabric S1.
102. Roundhouse 1, [165]. Belgic rim sherd; Fabric V1.
103. Roundhouse 1, [165]. Burnished rim sherd; Fabric S1.

Pottery from Roundhouse 4

104. Roundhouse 4, [64], 195N × 25E. Base sherds from Late Iron Age vessel, Form E; Fabric VI.
105. Roundhouse 4, [84], 170N × 30E. Burnished jar, Form JD4; Fabric F3.
106. Roundhouse 4, [84], 160N × 40E. Burnished bowl. Form BD5 decorated with shallow tooled cross motifs on the interior rim-edge; Fabric S1.
107. Roundhouse 4, [84], 160N × 40E. Burnished bowl, Form BD3.

Pottery from Roundhouse 20

108. Roundhouse 20, [14146/14147/14180], 320N × 40E. Burnished sherd decorated with shallow groove and impressed dots; Fabric S1.
109. Roundhouse 20, [14180/14199], 330N × 31E. Burnished sherd decorated with shallow curvilinear groove and impressed dots; Fabric S1.

Pottery from Roundhouse 24

110. Roundhouse 24, [14146/14147], 410N × 45E. Burnished sherds, decorated with impressed dots and shallow curvilinear grooves; Fabric S1.
111. Roundhouse 24, [14243/14244], 406N × 40E. Bowl, Form BA3; Fabric S1.
112. Roundhouse 24, [14256/14266/14213], 372N × 45E. Burnished rim sherd with faint cross or chevron decoration on interior rim-edge; Fabric S1.
113. Roundhouse 24, [14256/14266/14213], 372N × 45E. Base, from M, decorated with an incised double cross/cross-hatch motif on underside; Fabric S1.

Pottery from Roundhouse 25

114. Roundhouse 25, [1907], 440N × 95E. Burnished base, Form M, decorated with a wiped cross on underside; Fabric S1.
115. Roundhouse 25, [1907], 425N × 60E. Eight sherds decorated with bands of shallow tooled curvilinear chevrons; Fabric S1.
116. Roundhouse 25, [1907], 440N × 95E. Burnished bowl, Form BC7, Base-form C; Fabric S1.
117. Roundhouse 25, [1907], 461N × 90E. Burnished rim; Fabric F2.
118. Roundhouse 25, [1907], 461N × 90E. Base-form D, decorated with a faint wiped-cross on underside; Fabric S1.

Pottery from Roundhouse 31

119. Roundhouse 31, 500N × 158E. Base-form N, oval in shape; Fabric S1.

Pottery from Roundhouse 45

120. Roundhouse 45, [7730], 972N × 151E. Bowl, Form BC3, decorated with a shallow groove along the rim-top; Fabric F2.

Pottery from Roundhouse 51

121. Roundhouse 51, [5039/5097/5093], 1027N × 145E. Bowl, Form BC3, decorated with vertical scoring from the carination down, and with fingertipping along the rim-top; Fabric S1.

Pottery from Roundhouse 64

122. Roundhouse 64, [12447/12448], 1129N × 367E. Burnished bowl, Form BC2; Fabric FS.

Pottery from Roundhouse 65

123. Roundhouse 65, 1153N × 269E. Body sherd decorated with a single groove and row of square notches. Sandy fabric with sparse finely crushed flint.

Pottery from Roundhouse 69

124. Roundhouse 69, [5432], 1210N × 246E. Bowl, Form BC2, decorated with fingertipping on the rim-top; Fabric S1.
125. Roundhouse 69, [5432], 1238N × 282E. Jar, Form JC1, decorated with fingertipping on the rim-top; Fabric F2.
126. Pit in Roundhouse 69, [1231N × 245E]. Body sherd decorated with curvilinear groove flanked by a row of dot decoration on either side.
127. Pit in Roundhouse 69, [1231N × 245E]. Burnished shoulder of a round-bodied vessel decorated with tooled lines and rows of impressed dots. Sparse sandy fabric.

Pottery from Roundhouse 79

128. Roundhouse 79, [5904/5906/5915], 1400N × 320E. Burnished base, Form M, decorated with a wiped-cross on underside; Fabric S1.

Pottery from Roundhouse 82

129. Roundhouse 82, [6101], 1530N × 380E. Burnished bowl, Form BA1; Fabric FS.
130. Roundhouse 82, [6101], 1506N × 380E. Bowl, Form BC2; Fabric F2.
131. Roundhouse 82, [6101], 1510N × 380E. Base, Form F; Fabric FS.
132. Roundhouse 82, [6101], 1510N × 380E. Bowl, Form BC2; Fabrics FS.
133. Roundhouse 82, [6101], 1510N × 380E. Base and body sherds from large burnished vessel. Base-form B; Fabric FS.
134. Roundhouse 82, [6103], 1540N × 355E. Burnished jar, Form JC2, Base-form D; Fabric S1.
135. Roundhouse 82, [6103], 1510N × 380E. Rim of vessel decorated with a row of fingertip impressions on the top surface of the rim and finger pinching in a row round the neck; Fabric F2.

Pottery from Roundhouse 85

136. Roundhouse 85, [6198], 1563N × 441E. Handle; Fabric F2

Pottery from Roundhouse 88

137. Pit in Roundhouse 88 [10167], 164N × 684E. Burnished base sherd, Form E; Fabric FS.

Pottery from Roundhouse 89

138. Roundhouse 89, [11444], 1674N × 990E. Burnished vessel with bands of incised cross-decoration on neck and shoulder, both bounded by horizontal groves; Fabric S1.
139. Roundhouse 89, [11446], 1681N × 992E. Body sherd decorated with a band of shallow diagonal impression; Fabric FS.
140. Roundhouse 89, [11510], 1673N × 966E. Burnished bowl, Form BD3; Fabric S1.

Pottery from Roundhouse 93

141. Pit in Roundhouse 93, 1740N × 577E. Bowl, Form BD3. Base-form M, decorated on underside with an incised cross.

Pottery from Roundhouse 97

142. Roundhouse 97, [10959], 1813N × 905E. Burnished bowl, Form BC2; Fabric FS.
143. Roundhouse 97, [10959], 1818N × 894E. Bowl, Form BC2.

Wiped outer surface and rim-top decorated with fingertip impressions; Fabric F2.

144. Roundhouse 97, [10959], 1785N × 865E. Rim sherd decorated with fingertip impressions on the inside edge of rim and fingernail within fingertip impressions around the outside edge of rim; Fabric FS.
145. Roundhouse 97, [10959], 1791N × 864E. Small haematite-coated sherd decorated with curvilinear combing; Fabric F1.

Pottery from Roundhouse 100

146. Roundhouse 100, [10315], 1913N × 610E. Sherd decorated with shallow grooves in a linear pattern; Fabric FS.
147. Roundhouse 100, [10315]. Burnished base, Form H; Fabric FS.

Pottery from Roundhouse 101

148. Roundhouse 101, [10365], 1999N × 563E. Burnished Jar, Form JD1; Fabric F2.
149. Roundhouse 101, [10365], 2001N × 565E. Rim sherd; Fabric S1.
150. Roundhouse 101, [10365], 1987N × 567E. Burnished jar, Form JC3; Fabric FS.

Pottery from the RBI Enclosure

151. RBI, 193N × 97E. Base, Form N, decorated on underside with cross-hatch/double-cross motif.
152. RBI, 155N × 270E. Lower half of vessel decorated with an incised curvilinear scroll. Base-form P.
153. RBI, 380N × 150E. Body sherd from a globular vessel decorated with incised lines and two triple concentric circle-stamps.
154. RBI, 326N × 122E. Body sherds from a globular vessel decorated with part of an incised interlocking arc motif with circlet and double concentric circle stamps. Profuse medium crushed calcite filler. Published as Elsdon 1975, 61, fig. 14 no. 1.
155. RBI, 326N × 122E. Body sherd belonging to a globular vessel. Decorated with incised grooves forming part of an interlocking arc motif with stamped circlets. Profuse medium crushed calcite filler. Published as Elsdon 1975, 61, fig. 14 no. 4.
156. RBI, 155N × 270E. Burnished bowl, Form BD3 decorated with curvilinear scroll. Base-form N; sandy fabric.
157. RBI, 155N × 270E. Burnished sherd decorated with curvilinear pattern.
158. RBI, 155N × 270E. Everted rim with horizontal groove on the neck.
159. RBI, 155N × 270E. Burnished sherd decorated with curvilinear pattern.
160. RBI, 155N × 270E. Burnished jar, Form JC3. Sandy fabric.
161. RBI, 370N × 140E. Burnished bowl, Form BD3, decorated with a curvilinear pattern below a horizontal neck groove. Sandy fabric.
162. RBI, 380N × 150E. Selection of body sherds from a large globular vessel decorated with triads of triple concentric circle-stamps enclosed by two horizontal grooves. Medium crushed flint filler.
163. RBI, 400N × 145E. Body sherd from a globular vessel decorated with a circlet and double concentric circle-stamps. Sparse, finely crushed calcite filler. Published as Elsdon 1975, 61, fig. 14 no. 2.
164. RBI, 410N × 155E. Body sherd with grooved lines demarcating zones filled with dot decoration. Published as Elsdon 1975, 61, fig. 14 no. 9.
165. RBI, 375N × 35E. Bowl, Form BD3. Base-form D, decorated on underside with an incised single cross.

Pottery from the 'Banjo' Enclosure

166. Banjo enclosure, 1263N × 161E. Base, Form M, decorated on underside with incised double loop motif.
167. Banjo enclosure, 1068N × 220E. Base-form M, decorated on underside with an incised single cross.
168. Banjo enclosure, 1063N × 220E. Base-form M, decorated on underside.
169. Banjo enclosure, 1252N × 270E. Body sherd decorated with incised curvilinear pattern.
170. Banjo enclosure, 1252N × 270E. Base-form M, decorated on underside with incised arcs.
171. Banjo enclosure, 1150N × 268E. Lower half of vessel decorated with an incised curvilinear scroll. Base-form P.

Pottery from the Double Ditch Enclosure

172. Double ditch enclosure, 1212N × 848E. Body sherd decorated with a single groove and a row of square notches. Sandy fabric with sparse finely crushed flint.

Pottery from gullies

173. Gully, 1061N × 115E. Body sherd decorated with curvilinear groove flanked by a row of dot decoration.
174. Gully, 1088N × 318E. Base-form M, decorated with randomly wiped/incised lines.

Pottery from pits

175. Pit, [5793], 1001N × 289E. Bowl, Form BD5 decorated with shallow-tooled curvilinear motif; Fabric S2.
176. Pit, [5793], 1001N × 289E. Burnished rim and base sherds. Base-form D; Fabric S1.
177. Pit, [5839], 1041N × 290E. Jar, Form JB3; Fabric S1.
178. Pit, [5839], 1041N × 290. Bowl, Form BE1, Base-form M, decorated with a row of fingertip impressions on the rim-top; Fabric S1.
179. Pit, [5839], 1041N × 290. Burnished rim sherd; Fabric S1.
180. Pit, [5839], 1041N × 290E. Burnished Base-form M; Fabric S1.
181. Pit, [10507], 2005N × 740E. Jar, Form JC2; Fabric F2.
182. Pit, [10507], 2005N × 740E. Cup; Fabric F2.
183. Pit, [10919], 1828N × 825E. Bowl, Form BD3, decorated with incised chevrons on exterior edge of rim; Fabric S3.
184. Pit, [10919], 1828N × 825E. Base-form M, decorated with wiped cross on underside; Fabric S1.
185. Pit, [10919], 1828N × 825E. Base-form Q; Fabric S1
186. Pit, [10919], 1828N × 825E. Dish, Sub-class DA; Fabric S1.
187. Pit, [10919], 1828N × 825E. Bowl, Form BD3; Fabric FS.
188. Pit, [10919], 1828N × 825E. Residual Late Bronze Age/ Early Iron Age sherd. Form BC1; Fabric F1.
189. Pit, [10919], 1828N × 825E. Bowl, Form BD5 decorated with curvilinear motif; Fabric S1
190. Pit, [10919], 1828N × 825E. Burnished body sherd with deep curved groove. Sand-tempered.
191. Pit, [10919], 1828N × 825E. Body sherd with neck groove and incised rectilinear lines.
192. Pit, [10921], 1832N × 840E. Base-form P, decorated with rudimentary wiped cross on underside; Fabric S2.
193. Pit, [10921], 1832N × 840E. Burnished Base-form M; Fabric S2
194. Pit, [10923], 1885N × 845E. Jar, Form JC2; Fabric S1.
195. Pit, [10923], 1885N × 845E. Burnished base-form M; Fabric S2
196. Pit, [10923], 1885N × 845E. Burnished bowl, Form BD3; Fabric S2.
197. Pit, [25062], 2184N × 676E. Flat inverted rim with faint fingertip impressions on rim-top; Fabric S1.
198. Pit, [25062], 2184N × 676E. Base-form R, with grass impressions on exterior; Fabric F2.
199. Pit, [25062], 2184N × 676E. Burnished jar, Form JC3; Fabric F1.
200. Pit, [25563], 2243N × 1008E. Jar, Form J3, decorated with fingertip impressions on rim top.
201. Pit, 380N × 120E. Jar, Form JC2, with fingernail impressions on the rim-top and vertical scoring on the body. Base-form E. Diameter 120mm.

202. Pit, 341N × 58E. Burnished bowl, Form BD3, decorated with curvilinear scroll. Base-form N, underside decorated with an incised cross-hatch/double-cross motif. Vessel tempered with finely crushed flint and glauconite.
203. Pit, 550N × 210E. Body sherd decorated with incised curvilinear pattern.
204. Pit, 745N × 394E. Body sherd with horizontal line above a curvilinear groove. Sand with some flint.
205. Pit, 632N × 252E. Bowl, Form BD3. Base-form N, decorated on underside with a wiped single cross.
206. Pit, 904N × 272E. Body sherd from a globular vessel decorated with a double wavy line (possibly a standing arc) above which is a row of three small circlets flanked by pairs of larger double concentric circle-stamps. Sandy fabric with fairly profuse crushed flint filler.
207. Pit, 1303N × 376E. Rim of a globular beaded-rim jar decorated with incised lines and circlet with central dimple.
208. Pit, 375N × 110E. Base-form N, decorated on underside with incised double loop motif.
209. Pit, 550N × 210E. Body sherd decorated with a row of impressed dots.
210. Pit, 2253N × 866E. Perforated base-form L, decorated on underside with a single cross.
211. Pit, 984N × 255E. Bowl, Form BD2. Base-form M, decorated with an incised circle overlain by a simple cross; the quadrants of which each contained single tooled chevrons/arcs.
212. Pit, 782N × 266E. Biconical jar with high rounded shoulder and beaded rim. Decorated with incised chevrons and 'loop' motifs. Vesicular with sand filler.

Pottery from postholes

213. Posthole, 1110N × 297E. Two neck sherds decorated with deep horizontal grooves flanked on each side by impressed dots. Crushed flint filler. Published as Elsdon 1975, 61, fig. 14 no. 19.
214. Posthole, 637N × 256E. Body sherd decorated with incised lines backed by reversed-Z rouletting. Published as Elsdon 1975, 66, fig. 19 no. 1.

Pottery from ditches and kilns

215. Ditch, 755N × 350E. Body sherds decorated with incised grooves and double concentric circle-stamps. Medium crushed flint filler. Published as Elsdon 1975, 61, fig. 14 no. 10.
216. Ditch, 637N × 266E. Body sherd belonging to a globular vessel. Decorated with two rows of reversed-Z rouletting, one backed by a broad groove, and a line of triple concentric circle stamps. Profuse medium crushed shell/calcite filler. Published as Elsdon 1975, 66, fig. 19 no. 2.
217. Ditch, 745N × 350E. Body sherd with incised groove and a double concentric circle stamp, tempered with medium crushed flint. Published as Elsdon 1975, 61, fig. 14 no. 7.
218. Ditch, 775N × 360E. Body sherd decorated with double concentric circle-stamp.
219. Ditch, 873N × 152E. Base sherd decorated with a wide horizontal groove with small oval impressions above. Sand-tempered.
220. Ditch, 902N × 271E. Body sherd from a globular vessel decorated with a circlet and double concentric circle-stamps above a horizontal groove. Sandy fabric with fairly profuse flint filler.
221. Ditch, 954N × 184E. Burnished body sherds decorated with a dimple encircled by impressed dots from which rows of dots emanate between narrow grooves in a 'whorl' pattern. Finely crushed flint (?) filler. Published as Elsdon 1975, 61, fig. 14 no. 17.
222. Ditch, 2095N × 635E. One of two burnished rim-sherds decorated with chevrons filled with incised horizontal lines. Sandy fabric with occasional large white particles.
223. Ditch, 535N × 208E. Base-form N, decorated on underside with a single cross.
224. Ditch, 535N × 213E. Base-form N, decorated on underside with a single cross.
225. Ditch/Kiln 17, 740N × 148E. Two burnished body sherds from the same vessel. Decorated with grooved lines arranged in a formal arc pattern and double concentric circle-stamps. Sand-tempered. Published as Elsdon 1975, 61, fig. 14 no. 8.
226. Kiln 4, 745N × 366E. Residual. Burnished body sherd decorated with incised grooves and a deeply impressed circlet and double concentric circle-stamp. Probably part of a formalised arc motif. Common medium crushed calcite filler. Published as Elsdon 1975, 61, fig. 14 no. 5.

Unstratified sherds and sherds without coordinates

227. 850N × 110E. Body sherd decorated with reversed-S rouletting or stamping (?) below a horizontal groove. Published as Elsdon 1975, 61, fig. 14 no. 12.
228. 1664N × 870E. Body sherd with incised curvilinear lines.
229. Rim sherds of round-bodied bowl decorated with curvilinear grooves.
230. Body sherds decorated with impressed dots, some of which seem to form rosettes. Finely crushed flint filler. Published as Elsdon 1975, 61, fig. 14 no. 15.
231. Body sherd decorated with two stamped circlets located between a series of narrow incised grooves arranged in a chevron pattern. Profuse finely crushed flint. Published as Elsdon 1975, 61, fig. 14 no. 6.
232. Body sherd decorated with a partly burnished narrow grooved arc, flanked by a row of impressed dots and a stamped circlet. Large shell/calcite filler. Published as Elsdon 1975, 61, fig. 14 no. 13.
233. Body sherd decorated with a cordon with two rows of small triangular stab marks. Profuse coarse shell/calcite filler. Published as Elsdon 1975, 61, fig. 14 no. 14.

Late Iron Age Pottery – An Overview
Isobel Thompson

Various factors have impeded understanding of Mucking in the Late Iron Age, in large part due to the circumstances set out in the Introduction to this chapter. When undertaking research on Late Iron Age grog-tempered pottery in the 1970s I visited MPX two or three times, hoping to see relevant assemblages. Margaret was always welcoming, but the result was that the burial groups are the only artefacts for which I have any notes. This was no doubt due to the sheer quantity of pottery and the way it was excavated and dealt with; it was difficult if not impossible to lay out assemblages for examination. At the same time, I was fairly sure that the kiln products were post-Conquest, and not as early as Margaret assumed. Decades later, I am grateful to the Cambridge team for this opportunity to address, identify and characterise the site's Late Iron Age pottery.

What follows must be treated with a certain amount of caution, as I have still not seen the pottery. Conclusions have had to be drawn from the *fabric series*, the 'question source file' (*QSF*), which records

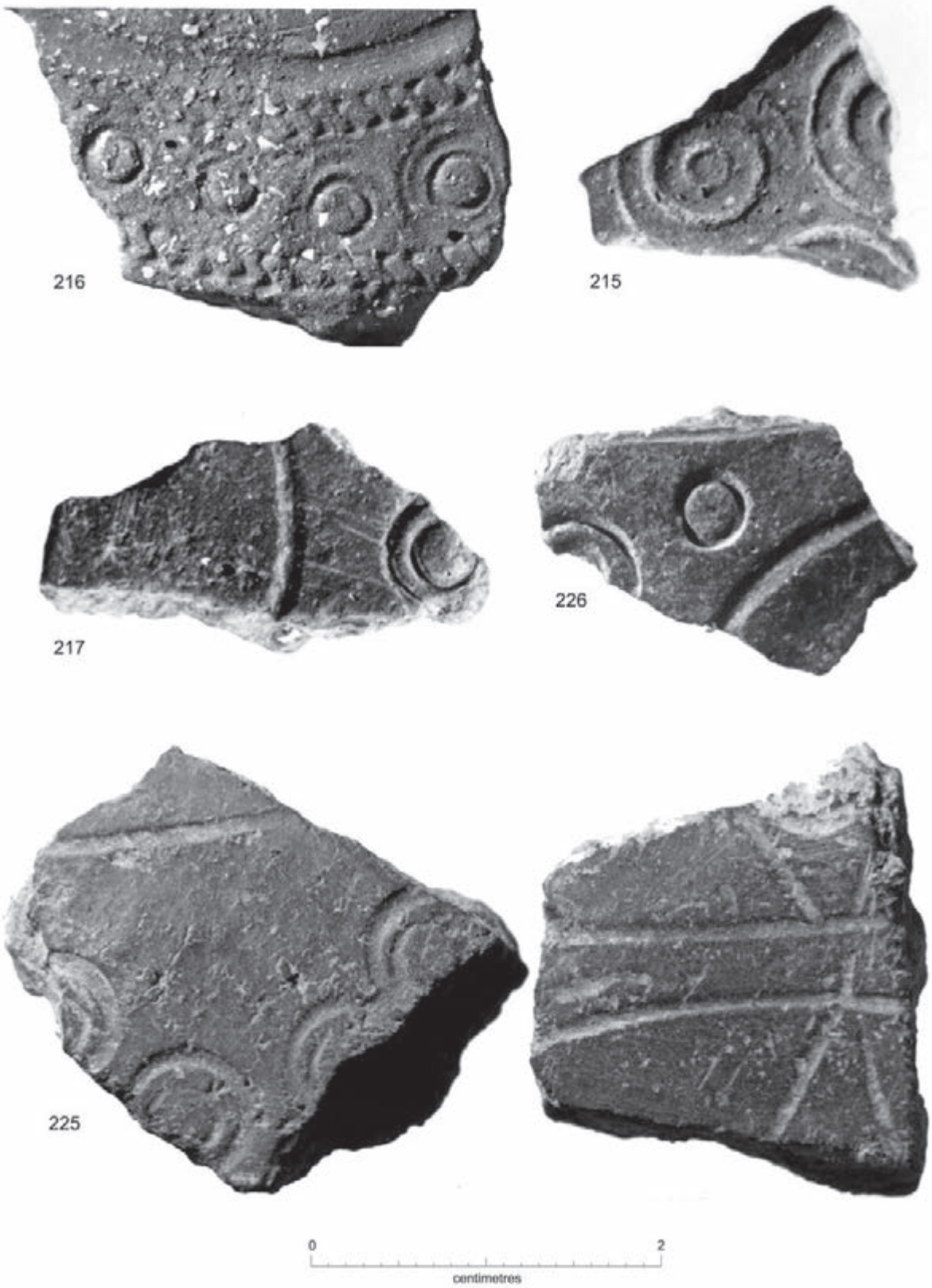


Figure 5.6. La Tène-decorated pottery, motif details.

context, fabric, form, *etc*., and sample *illustrations* of the various forms. Of these, the fabric descriptions (set out by Rosemary Jefferies in the Roman volume) are comprehensive, and – importantly – recognisable. Although 'the Fabric Series was established at a time when little work had been carried out on pottery production in the Thames Estuary, before the appearance of a number of key ceramic reports and typologies' (Jefferies, Roman vol.), it retains its usefulness. Those fabrics which can be labelled 'Late Iron Age' are set out below.

Identification of form and fabric in the QSF is more problematic. Input of data 'was undertaken by a number of volunteers with little, or no, archaeological training or experience' (*ibid*.). They had 'some supervision' and no doubt gained in consistency over time, but identifying the fabrics of a vast number of sherds with only an instruction manual and specimen sherds could not have been a precise science: 'This has led to inconsistencies and errors, particularly in the apparently large number of the so-called Belgic fabrics' (*ibid*.). Forms, too, were assigned on the basis of the manual. These should not have the same degree of error, as it appears that a form was only assigned if it was reasonably obvious; but Jefferies notes whole ranges of 'variants' in the form series, and several forms for which it is not possible to define an unequivocal description from the working type series. In addition, it is unclear whether all possible specialised forms were included in the manual, and inexperienced volunteers would fail to recognise forms from fragments, which those more familiar with the range would have spotted.

No quantification was done. But the present study would not have been possible without Sam Lucy's manipulation of the QSF into a manageable table of forms by fabric, with totals. This has enabled a rough calculation to be made of the numbers of each form occurring in each fabric. These are in no case absolute totals, but they are essential for comparison.

These provisos need to be borne in mind when considering the following conclusions. Despite the difficulties, it has been possible to discern a definite character in this assemblage, one which appears to make sense and places Mucking in its regional context.

'Late Iron Age' Fabrics

The following includes those descriptions in the Mucking Fabric Series which appear to be classifiable as Late Iron Age. It is normal for the pottery of the earlier first century AD to change only gradually into romanised and, then, fully Roman forms and fabrics, and attempts at distinction between pre-Conquest and post-Conquest are difficult (and probably misleading); the shorter term 'Late Iron Age' is preferable as a description of the relevant pottery, as long as it is understood to include this process.

The full Fabric Series with descriptions is given in the Roman volume. The relevant fabrics are summarised here, and their comparative quantities shown in the figure (Fig. 5.7).

The BL group of fabrics 'was perceived to be representative of the Late pre-Roman Iron Age and the Early Roman period' (Roman vol.).

BLA is a group characterised by **shell temper** and fairly coarse sand. The range includes shell with sparse flint (BLA1); shell with grog (BLA2); and romanised versions (BLA3, BLA4) 'transitional to grey wares', which are hard and sandy with less shell, as well as either flint or grog. These are combinations found widely in south Essex and parts of north Kent. The quantity of pottery in BLA fabrics is approaching five times the quantity in the BLB group.

BLB is the group of standard **grog-tempered** Late Iron Age fabrics once commonly called 'Belgic'. Also in the clay are varying amounts of sand, and some also have mica and/or iron oxides, and possibly chalk. Six versions were identified, but it was not always easy to distinguish between them and it is likely that some reflect differences in firing temperature. This fabric group is generally fairly hard, with patchy black-brown-grey-red surface colouring and a brown or grey core with red–brown margins; from the descriptions, they are in general similar to Late Iron Age fabrics found across Essex, Kent, Hertfordshire and beyond in the first century AD and before. Although listed in the Fabric Series as 'Mucking products' they may not all have been made at Mucking. As an example, 'some BLB1 jars are a slightly different fabric from the BLB1 cups, platters and beakers' (Roman vol.); the more specialised forms are in a finer version of the fabric. But this may, of course, reflect working practice, those making the specialist forms deliberately using a different mix. It is also clear from the Roman type series that the Mucking potters continued to use this temper throughout much of the second century, as was being done at the same time (and for similar forms) on the other side of the estuary in Kent.

BLC is characterised by pinhead **vesicularity**, with sand, black oxides, and fine holes apparently produced by the inclusion of **chalk**. Some specimens have grog, and overlap with the BLB group. This fabric is only present in small quantities, but is also known elsewhere along the Thames Estuary.

These shell and grog groups represent the bulk of the Late Iron Age pottery at Mucking. There are, however, other fabrics to be considered:

FG – Flint-gritted, often but not always with red grog inclusions; 'seen in late La Tène features'. The combination of grog with flint is found in the Late Iron Age of north Kent; it is rare at Mucking.

GVC – Hard with patchy grey–orange surface colouring, with sand, grog and other inclusions; these appear to be romanised coarse ware fabrics. One version (GVC3) does not contain any grog. The figure shows the presence of a considerable quantity in romanised fabrics at Mucking, nearly twice as much as in the standard grog-tempered range (BLB).

TR Group – This is a specialist fabric, 'used at Mucking to make local *Terra Rubra* copies, predominantly butt beakers and platters' (Roman vol.). The fabric is fairly soft, with usually a grey core and red–orange surfaces which reflect

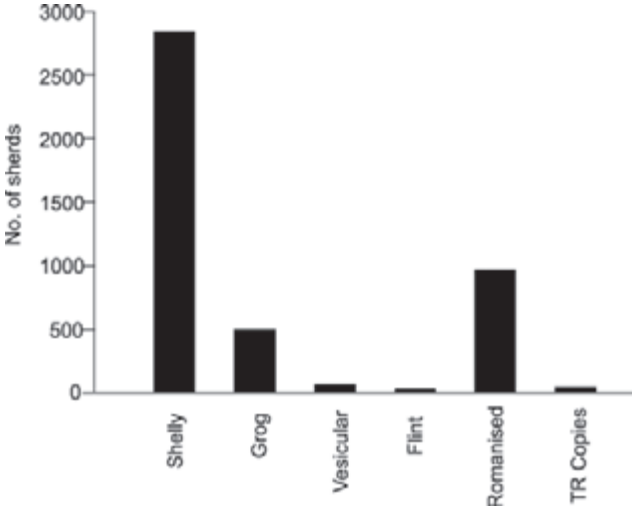


Figure 5.7. Frequency of Late Iron Age/Early Roman fabrics.

Figure 5.8. (opposite) Late Iron Age pottery: 1) Cat. No. 16313, 450N × 170E, Level 3, ditch RBI. High-shouldered jar with prominent bead rim and horizontal rilling on body in sand- and grog-tempered fabric (variant of Cam 260a); 2) Cat. No. 16334, 510N × 110E, Level 2, pit. Wide-mouthed everted rim jar with cordon on shoulder and groups of vertical incised lines below, in sand- and grog-tempered fabric; 3) Cat. No. 16279, 989N × 176E, Level 3, Enclosure 10. Wide-mouthed cordoned bowl/jar with perforated base in sand- and grog-tempered fabric (Cam 218a); 4) [No Cat. No.] 700N × 145E, Level 1, pit. Wide-mouthed cordoned bowl/jar with perforation at top of shoulder in sand- and grog-tempered fabric; 5) Cat. No. 6284, 1010N × 207E, Level 2, pit. Wide-mouthed jar with cordons on shoulder and upper body, vertical incised lines on lower body and grafitto on base, in sand-tempered fabric with pinhead vesicularity; 6) Cat. No. 16328, 961N × 260E, Level 1, pit. Carinated cup/bowl in sand- and grog-tempered fabric with some shell (possible variant of Cam 209); 7) Cat. No. 16281, 1206N × 136E, Level 2, pit cutting Enclosure 11 ditch. Girth beaker with flattened bead rim with grooves and two cordons at maximum girth, in sand- and grog-tempered fabric (variant of Cam 117); 8) Cat. No. 16286, 853N × 153E, Level 1, Enclosure 21. Butt beaker with cordons on shoulder and body in sand- and grog-tempered fabric (variant of Cam 113); 9) Cat. No. 6453, 911N × 217E, pit. Wide-mouthed high-shouldered storage jar with triangular rim in shell- and sand-tempered fabric; 10) Cat. No. 9538, 353N × 147E, Level 5, RBI. Carinated cup/bowl with three evenly spaced cordons on upper body in sand- and grog-tempered fabric (resembles Cam 211); 11) Cat. No. 16325, 840N × 303E, Level 1, pit. Platter in sand- and grog-tempered fabric, of form variant between Cam 2a and Cam 2b.

finely gauged temperature control in the firing process, to produce the desired effect. Such copies of imported wares are found across the region in the first century AD. It is clear, however, that at Mucking there were considerable difficulties in identification, and many possible examples are doubtful.

The numerical proportions of the forms in the various fabric groups (Fig. 5.7) are informative, although as the gross figures do not include sherds with no classifiable form (or those which could not be identified by the volunteers) it is not entirely certain that they are representative of the assemblage as a whole.

The Forms

In the 'working type series', the relevant Series or groups (of those forms which are identifiable as 'Late Iron Age') are:

A Series: *Coarse-ware neckless jars, in three main groups* (plain bead-rims; ledge- or lid-seated rims; rilled) – The vast majority of these are in the shelly fabrics (BLA). Some might be pre-AD 43, but the bulk is later, made in Mucking kilns. The plain and lid-seated bead-rim jars predominate, and are forms found at many other sites along the Thames Estuary (such as Gun Hill; Drury & Rodwell 1973). The rilled jars (Form C7–1: Thompson 1982, 173) are a largely post-Conquest and grog-tempered form in Essex. It is not a form particularly suited to shell, although the two Mucking examples show that the potters tried it.

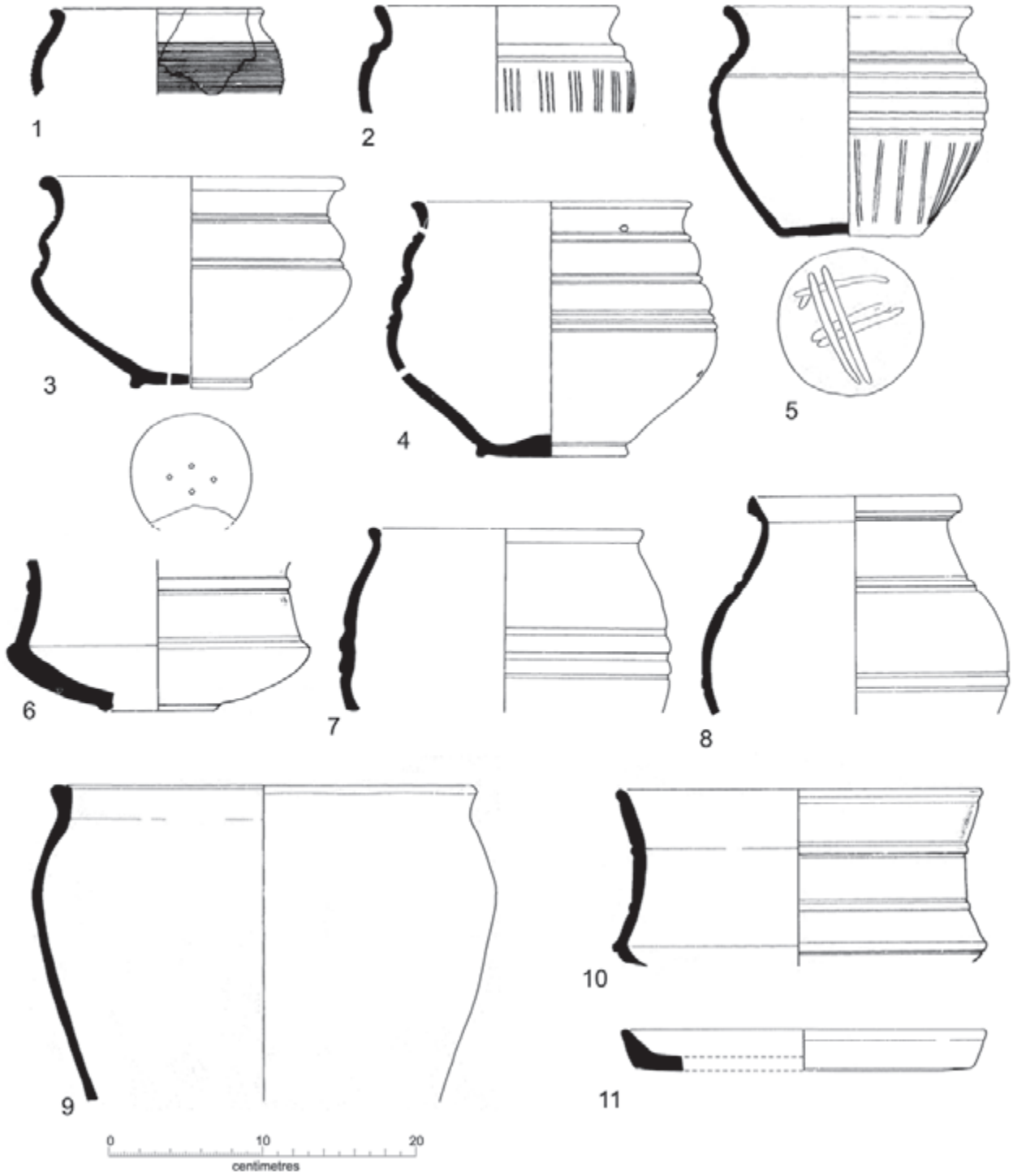
(Shelly fabrics continue to be used from the later first century onwards for decorated jar forms in the B Series.)

C Series: *Cordoned or corrugated jars with offset neck and everted rim* – These are largely grog-tempered and comprise a range of familiar Late Iron Age forms commonly found in this fabric range (BLB). They are well-made and the range of forms is quite wide; the stylistic links are with south and mid Essex, and north Kent. They include the cordoned bowl form D2-1 (Thompson 1982, 319), found across Essex and Hertfordshire; D2-4, a round bowl with rippled shoulder (Thompson 1982, 329) which is fairly commonly found in pre- and post-AD 43 contexts in Hertfordshire and north Kent, as well as south Essex (as at Gun Hill, Drury & Rodwell 1973, fig. 15, nos. 51 & 54; Canewdon, Scott's Hall, Thompson 1982, 656, no. 243; and South Benfleet, Thompson 1982, 823, no. 53); D3-4, a lid-seated cordoned bowl (Thompson 1982, 343) which is not found in Kent; a large corrugated bowl similar to E2-2 (Thompson 1982, 381) with parallels in Kent and south Essex.

None of them need be early. They may all belong to the period just after the Conquest, up to the beginning of the Flavian period. A useful parallel is a range of cordoned jar forms associated with an unpublished early structural kiln at The Grove, Watford, Herts, which was in use in the early 60s AD.

D Series: *Plain everted-rim jars and bowls with offset necks* – These come in a wide range of fabrics including grog; they include standard Late Iron Age forms such as the wide plain bowl D1-1 (Thompson 1982, 299), found across Essex, Kent, Hertfordshire and beyond, but which are well known to overlap the Conquest and appear in romanised and, eventually, Roman versions by the late first–second century. None of these are distinctive and all could be post-AD 43 or later; their occurrence in grog is occasional, not customary. So although this series includes the plain Late Iron Age forms, it does contrast notably with the C Series, which illustrates a more deliberate use of grog-tempering.

J Series: *Storage jars and buckets* – This series includes three main forms: storage jars, a rilled bowl form, and



buckets. The storage jars include some primitive-looking forms, which are here only found in shelly fabrics. These could be pre-AD 43. The other storage jar forms (which have a few examples in grog) are all late, from the late first century onwards. The use of grog for these late forms is ubiquitous elsewhere, into the second century (Thompson 1982, 257).

The rilled bowl JA04 is found only in grog, and may be early (although horizontal rilling is not an early feature on A Series plain jars). The illustrated vessel stands out as possibly pre-Conquest in its general appearance. But parallels for this wide bowl form (without the rilling), in Essex and north Kent, are long-lasting, from before the Conquest, and continue into the second century in Kent (Form D1-4, Thompson 1982, 311).

The buckets are an interesting mid to later first-century form; they are found here, as elsewhere, in shell. They are an uncommon but widespread special form which could do with further study of their manufacture and distribution, especially their relationship with major Late Iron Age

centres. Examples are known from Gun Hill (Drury & Rodwell 1973, fig. 16, nos. 79–80); Baldock (Stead & Rigby 1986, 287, fig. 112, no. 107), and further afield.

M Series: *Barrel jars and butt beakers* – There are few of each form, complicated by some confusion over identification. Where the forms are identifiable they fall into two 'Late Iron Age' groups, barrel jars (essentially native) and butt beakers (copies of Continental imports). Both need considerable technical skill, and appear to be well made. The barrel jars are largely pre-Conquest forms, although they can overlap the Conquest and appear comparable to the elaborate cordoned forms in the C Series. The range includes a globular cordoned form which is largely found in pre-Conquest burials in Kent (B5-5: Thompson 1982, 207), and a taller version (B5-3: Thompson 1982, 199), found widely in Essex with some north Kent examples. The butt beakers include the less common barrel form, which can also be pre-Conquest (although the illustrated plain example looks late), and the offset-neck version which continues to be made in the later first century AD. At Mucking they are grog-tempered.

P Series: *Cups* – This series includes Roman cups in Roman fabrics as well as several 'Late Iron Age' forms in grog-tempered and related fabrics. The range of Late Iron Age forms, however, is small; a few carinated cups of the most common types, all of which can be post-Conquest.

Q Series: *Plates* – Several of these occur in grog (BLB), and some of these forms were also made in shelly fabrics (BLA). This is interesting as an instance of the Mucking potters trying out forms not usually made in their local fabric. All the forms are post-Conquest, apart from possibly QA02, which if it comes with a foot-ring is the generally pre-Conquest G1-1 (Thompson 1982, 441). There are 14 examples, which may mean that some of them are pre-AD 43; but there appears to be no example which is certainly this form. QD01 is the standard Kent plate-form in the later first century AD (G1-6: Thompson 1982, 459); it is not nearly as common elsewhere.

Several of the other series have a few examples in grog (although the identification is not always certain); what they show is the occasional use of grog as one of a range of fabrics used for Roman forms in the late first to early second century.

It is also interesting to see what is not made in grog at Mucking. The ubiquitous storage jar and all the other everyday domestic forms are in shelly fabrics, and there are few plain everted-rim jars and other standard grog forms. The range of grog-tempered fabrics is reserved, apparently, for the more elaborate vessels, and for some copies of imported forms.

In conclusion, the overall impression is of very little that can unequivocally be considered pre-Conquest. A proportion of the shelly wares may be, and perhaps a much smaller proportion of the grog-tempered vessels. It is possible that shell was the standard fabric range here until the mid-first century AD, and shelly fabrics continued to dominate production in the post-Conquest period. But at this point grog-tempered fabrics, in types found across much of the region, appear, and are used largely for the manufacture of certain specialised forms. This is what happened on a much smaller scale at The Grove, Watford, in southwest Hertfordshire, where in the 60s AD specialist forms familiar in early contexts at Verulamium were made in one of the earliest structural kilns known in the county (Thompson 2002). Interestingly, these vessels were not used at The Grove itself; they did not occur amongst the domestic wares found in the contemporary enclosure ditches. It appears that they were made at The Grove for use in Verulamium.

The combination of forms and fabrics suggest that skilled and organised potters set up shop at Mucking in the mid first century AD and produced a great deal of shell-tempered domestic wares in the local tradition, and also a smaller range of the more elaborate Late Iron Age forms, new to Mucking but required by high-status consumers for domestic and burial use. These goods, both domestic and special, were traded or otherwise transported, perhaps over a fairly large area on each side of the Thames. Stylistic links exist with south Essex, north Kent, and east London, and possibly further afield. This industry continued to use traditional fabrics into the second century and later, gradually adapting to Roman norms.

Whom the Mucking potters were making the special forms for is a good question, and one which may take time and effort to answer. Pots similar to those at Mucking are found on other settlement sites in the south Essex estuary area, in varying proportions. The immediately recognisable shell-tempered bead rim jars, often with graffiti, are found, for instance, at Gun Hill (Drury & Rodwell 1973); Ardale School, South Ockendon (Wilkinson 1988, 86–92), and at William Edwards School, Grays (Lavender 1998, 28). These sites have only a few grog-tempered vessels, although these do include cordoned forms; the Grays site has virtually no grog at all. Other local sites with comparable assemblages perhaps have rather less marked a contrast. West Thurrock (Andrews 2009, 34–6) has a range of 'necked jar forms, frequently cordoned', as well as the dominant shelly jars. Ship Lane, Aveley (Foreman & Maynard 2002, 138–43) has a higher proportion of grog to shell, but the grog is only in a narrow range of forms. It has become evident that Mucking's sphere of influence, and perhaps supply of pottery, in the early post-Conquest period, runs upstream towards Londinium, founded *c.* AD 47–50. There may well be Mucking products at Moor Hall Farm, between South Ockendon and Rainham (see Howell *et al*. 2011, fig. 58). The establishment of the potting industry at Mucking is more or less contemporary with the Roman Conquest or just a little later, but the relationship of this event with the foundation of Londinium is unclear, as is so much in this period of transition.

Finally, it is worth setting out the contrast between the 'Late Iron Age' pottery assemblage at Mucking and the lack of it in the Late Iron Age burials. Demanding a degree of reiteration of descriptions of the latter vessels, this striking characteristic nonetheless requires some explanation, although nothing definite is offered here.

Cemetery IV – This 'appears to be early to mid first century in date'. Cremation 1011 contains grave-goods of the earlier to mid first century AD; a case can be made for the last burial, 1010, being post-Conquest, later than the others and contemporary with some of the Early Roman burials.

The cemetery consisted of nine putative cremations; three – Numbers 1010, 1011 and 1013 – were in the centre of square enclosures, perhaps originally square barrows. The other six were in pits, scattered around. Grave goods were found only in two of the enclosed burials; there was nothing in any of the others apart from 'bronze scraps' in the fill of one of the outside cremation pits (1006). The heat damage seen in at least some of these outlying pits implies that these were not burials but the pyre sites.

The enclosures are much smaller than those known elsewhere, and have far fewer grave-goods; was this local variation, or were the residents 'unable to tap into the sources of imported products' in the wealthy graves found within enclosures elsewhere? This is one of the more interesting questions raised by the excavations, especially in view of the fine cordoned jar and bowl forms made in the early Mucking kilns. The trumpet-based pedestal urn in Cremation 1011 is a handmade copy of a form characteristic of Late Iron Age burials elsewhere in first-century AD Essex (before and after the Conquest; Form A5, Thompson 1982, 65). It is a form that is inherently a product of the fast potter's wheel. This technology enables the production of elegant curving forms. The Mucking copy is clearly intended to represent the real thing, but is not a very good copy. The body and base were made separately and luted together; here the two parts were not quite the same size and the join is ugly. Possible explanations include the following:

- The genuine article was not available, such specialised forms being as unobtainable locally as imported pottery (presumably through lack of contact with the central places of the period, Colchester being the nearest). This is, however, an Essex form, and wheelmade south Essex examples have been found in first-century AD burials at Canewdon (Wick Farm: Thompson 1982, 658, no. 236), Prittlewell (Roots Hall: *ibid*., 800, nos. 227–8), Burnham-on-Crouch (Hill Farm: *ibid*., 651, no. 768), Shoebury (*ibid*., 819, no. 827) and possibly Orsett (*ibid.,* 794, no. 941); there is a Roman example from Great Wakering.
- Local custom or other cultural imperatives forbade the deposit of such expensive articles in burials.
- The grave may be earlier than the Mucking kilns; the specialist potters making cordoned jar and bowl forms were presumably capable of making pedestal urns (although, interestingly, they are noticeably absent from the range made at Mucking).

The other goods in this grave include, or appear to represent, a Colchester brooch which could be as late as the mid first century AD, a pair of tweezers, and a possible casket. This was intended to be a well-appointed burial. Whether or not it was contemporary with the early kilns, if these other articles were obtainable, why not a genuine pedestal urn?

Cremation 1010 was the latest, as although it was in the centre of the row, its enclosure cut both the outer ones when it was inserted between them. The cremation vessel in the grave may be post-Conquest. It is a 'large high-shouldered storage jar', bead-rimmed, in vesicular fabric with two rows of horizontal stabbed decoration on the shoulder, rilling and lattice decoration. There is nothing which unequivocally places this vessel in the first half of the first century AD; it could be a little later, making this group of burials overlap the Conquest.

Western Cemeteries (II & III) – This comprises eight inhumations in a line alongside a major enclosure ditch (Cemetery III); one more inhumation (Grave 89) in another ditch; and scattered cremations, with a concentration around the 1100 Enclosure (Cemetery II). The line of inhumations *might* be entirely pre-Conquest, although there is some doubt about this, and certainly the cremations are not all so early. It appears more likely that the inhumations and cremations are more or less contemporary, straddling the period of the Roman Conquest. More of these graves have pottery vessels than in Cemetery IV, but they are still not well-endowed with them.

Four of the Cemetery III inhumations contained traces of wooden coffins. Although residual first-century sherds (in Grave 660), including a butt beaker, were in the fill of one of them, the group of eight has been dated by the single vessel in Grave 652. This was classified as in NSP, undiagnostic sandy ware; it is a burnished tall narrow-necked jar or flask with a simple broad cordon on the neck, and considered to be a Mucking product. The fabric is unlikely to be early, and while the form in general can be pre-Conquest it can also be later. The date of this group of inhumations is, from the limited evidence of only two out of the eight, more likely to belong to the mid to later first century than earlier.

Of Cemetery II's cremations, one (103) contained part of a copper alloy brooch thought to date to the 'first two thirds of the first century AD'. Cremation 104 produced part of a storage jar in the romanised GVC fabric that is probably Flavian. Two other cremations (Nos. 98 & 112) contained vessels thought to be in the undiagnostic sandy fabric NSP, both Mucking products in standard 'Late Iron Age' forms. That in Cremation 98 is a round everted-rim jar with three ripples on the shoulder (Form B2-4: Thompson 1982, 133; cf. Conquest Period Great Wakering Grave 1 no. 824: *ibid*., 710), the other a wide-mouthed everted-rim cordoned jar. Neither of these is likely to be pre-Conquest.

A pair of more interesting vessels accompanied Cremation 87, with an iron nail. The first is a handmade globular jar with omphalos base and stamped and curvilinear decoration (Elsdon 1975, pl. III, fig. 2, no. 5), a vessel with Iron Age parallels along the Thames Estuary (cf. Gun Hill: Drury & Rodwell 1973, fig. 14). The fabric of the second pot, a tall jar with rippled shoulder, is catalogued as NSP (undiagnostic sandy ware), but my 1970s notes describe it as grog-tempered with red–grey

surfaces, apparently handmade; originally grey; the vessel was very badly worn, and possibly burned, so the original grey surface had worn off and become very soft. The vessel (Form B2-3: Thompson 1982, 127) was found incomplete, with some of the body and base inside the omphalos jar, and the rim pieces used to prop it up. As far as I know this is an extremely unusual practice. The form of the second vessel is quite commonly found in burials in Essex and Kent, often handmade, and often later first century BC although it can occur in later contexts. This example is less tall and rather wider-mouthed than the norm. Cremation 87 is presumably the earliest of this group of cremations, and appears to be pre-Conquest although how much earlier is uncertain. Decorated omphalos jars in the Thames Estuary region occur at several sites (Gun Hill, Canewdon and Great Wakering; Elsdon 1975, 18), which also have Late Iron Age grog-tempered vessels.

Other Iron Age burials at Mucking include four cremations (or possibly pyre sites) which have no pottery, but did contain the remains of brooches: an earlier first century BC iron wire brooch (Cremation 95; 1100 Enclosure), and three copper alloy bow brooches of the earlier to mid first century AD (Cremations 593, 636 & 651).

Since they include a few kiln products, it is evident that the latest burials in the Late Iron Age cemetery groups were contemporary with the establishment of the pottery kilns (from the middle of the first century AD), but why these burials were endowed with so little pottery is still unclear.

Iron Age Coins Colin Haselgrove

The excavations yielded a small but interesting group of Iron Age coins, including eight potins, two uninscribed bronzes, and three coins of Cunobelin (see Fig. 5.23 for distribution; Table 5.24). The coins are generally in poor condition, so that in several cases identification is at best uncertain. In addition, two identifications proposed here are at variance with those made by Derek Allen soon after the coins were found. The coins in question were not entered in the Celtic Coin Index (CCI) and it is unclear whether Allen saw the coins personally or relied on written descriptions.

Catalogue (Standard references: BMC = Hobbs 1996; M = Mack 1975; VA = Van Arsdell 1989).

Flat-Linear Potins

1) 65/1 – Flat-Linear potin. Obv Head left, with angular face; Rev bull left. Est. diam. 17mm
Class I, Type F or GB.
Date: later second to early first century BC (Haselgrove 2006; Gruel & Haselgrove 2007).
Context: RB Grave 36.
2) 66/8 [482] – Flat-Linear potin in three fragments. Obv Head right; Rev bull left.
Class I, probably Type L (or possibly H4).
Date: earlier first century BC (Haselgrove 2006; Gruel & Haselgrove 2007).
Context: Pit cut by 'Belgic' features ([12774]).
3) 66/9 – Fragments of corroded Flat-Linear potin. Signs of the edge-ring are the only identifiable feature. The size suggests a Class I coin, although Allen (1971, 146) listed this as Class II. Est. diam. >18mm.
Date: later second to mid first century BC (Haselgrove 2006; Gruel & Haselgrove 2007).
Context: Pit [8347].
4) 66/13 [487] – Flat-Linear potin. Obv: large round eye with no central dot, facing left? Rev absolutely blank. Est. diam. >18mm.
Class I, Type F, G, or H. Allen (1971, 146) listed this as a Class II coin.
Date: late second or early first century BC (Haselgrove 2006; Gruel & Haselgrove 2007).
Context: Pit (charcoal) with later Middle Iron Age pot ([834]).
5) 66/79 [727173] – Fragments of corroded Flat-Linear potin. Two concentric circles visible on one face are the only identifiable feature. The size suggests a Class I coin. Diam. >16mm.
Date: later second to earlier first century BC (Haselgrove 2006; Gruel & Haselgrove 2007).
Context: Pit [5700].
6) 66/80A [729118] – Three small fragments of a Flat-Linear potin. Further identification impossible.
Date: later second to mid first century BC (Haselgrove 2006; Gruel & Haselgrove 2007).
Context: ?Pit [7479].

Uncertain Potins

7) 66/77 [727171] – Incomplete potin coin, with thick edge rim. Seems quite heavy. Not identifiable. Van Arsdell classified this as a cast bronze of the Cantii, *c.* 100 BC, i.e. an early or prototype Flat-Linear. This identification is possible (and the coin seems too large to be a Kentish Primary type), but it might also be a Gaulish import. Est. diam. 19–20mm.
Date: second (or early first) century BC?
Context: Banjo primary fill ([5043]).
8) 66/123 – Potin. Obv: face left (one line of neck visible)? Rev: exergue, with indistinct linear shape above. Possibly a Kentish Primary type, cf. VA 1404. Est. diam. 18–19mm.
Class I (?)
Date: second century BC? (Haselgrove 2006).
Context: corner of (ext.?) ditch fill 3b (i.e. IA9).

Uninscribed Bronzes

9) 66/17 [664] – Uninscribed South-Eastern AE unit. Obv ?Head L: curved line with radiating strands of hair off; part of eye; three dots at ear/nape of neck. Rev: nothing detectable. As British LX21–22 (Mack 273–274), but detail different – e.g. hair is not evidently twisted. BMC 2450/2453, VA1615/1646. CCI 69.0567.
Date: 40/20–10/1 BC (Haselgrove 1987, Phase 7)
Context: RBI enclosure [bag adds: "box b=pebbly"]
10) 66/52 – Uninscribed South-Eastern AE unit? Previously identified as British LX21 (Mack 273).

BMC 2453, VA 1646?.
Date 40/20–10/1 BC (Haselgrove 1987, Phase 7)
Context: RBI enclosure late loam-fill.

Cunobelin
Silver

11) 66/16 [663] (Fig. 5.23) – AR unit, Early Colchester series. Obv: Head left with fine spiky hair; CAMVL in front. Rev: winged person seated on chair, wearing a hat and bowl in hand; CVNO below, pellet ring in front. No exergue evident; pellet border. Diam. 14mm. This coin published by De Jersey 2001, 35, who also assigns it to the earlier stages of Cunobelin's coinage. De Jersey C4; BMC 1863; VA 2045; CCI 69.0389.
Date: AD 1/10–20/30 (Haselgrove 1987, Phase 8E).
Context: RBII Inner.

Bronze

12) 66/81 [729119] (Fig. 5.23) – AE unit, Early Colchester series. Obv: Janiform head, CVNO (not visible); Rev: horse right, CAMV (M just visible).
BMC 1998; VA 2105.
Date: AD 1/10–20/30 (Haselgrove 1987, Phase 8E).
Context: Where RB ditch cuts Late Iron Age enclosure (No. 8; [7224]).
13) 66/67 [705095] – Cunobelin AE Unit, Developed Colchester series. Incomplete. Obv: Roman-style head left, CAMV in front. Rev: horse left, wavy line below, CVNO.
VA 2085; Mack 229; cf. BMC 1900 with head right
Date: AD 10/20–*c*. 40 (Haselgrove 1987, Phase 8L)
Context: Ditch of Late Iron Age 'Banjo' ([7465]).

Uncertain Bronze

14) 66/69 [705097] – Corroded AE coin, probably British Iron Age. One face has an elongated bump, that could be an animal (?); the other face reveals nothing obvious. Est. diam. 17mm.
Context: Banjo, Ditch 'X' Pit baulk ([7705]).
15) 66/124 – Small flat piece of copper alloy, both faces apparently featureless. Probably not a coin.
Context: Outer extension ditch trench (??; no co-ord. given)

The 13 more or less identifiable Iron Age coins are broadly as one might expect from a site in Mucking's geographical location occupied between the second century BC and the mid first century AD. The five Flat-Linear potins about which anything further can be said, are all apparently Class I types and presumably imports from the Kentish side of the Thames. One might have expected Class II potins also to be present, as they were apparently manufactured north of the Thames (Haselgrove 2006; Gruel & Haselgrove 2007) and are generally commoner in Essex and the adjacent counties. At the Stansted Airport Site, for example, only local Class II coins were found (Havis & Brooks 2004).

The four certainly Class I potins from Mucking most probably date between the later second and earlier first century BC, a view supported by the presence of two them in early contexts (66/8, 66/13). The recent discovery at Corent in central France of four Type O–P potins in a La Tène D2b context (*c*. 50–30 BC) has at last provided firm evidence for the view that the latest Flat-Linear varieties date to the mid first century BC (Gruel & Haselgrove 2007). Whilst it is probably wrong to think, as Allen (1970) did, in terms of a simple unilinear sequence for the entire series, this can only increase the possibility that the earlier Flat-Linear coins and the so-called Kentish Primary potins were produced in the second century BC. The two uncertain potins from Mucking are both likely to be early varieties, a possibility supported by the discovery of one of these (66/77) in the primary fill of the Banjo enclosure. The Flat-Linear potin from Grave 36 is presumably residual or curated.

The remaining five coins are all types that circulated in Essex between the mid first centuries BC and AD and their stratification reflects this. As might be expected, the three coins of Cunobelin are from his Camulodunum (Colchester) mint, rather than from his Hertfordshire series, and two of the three belong to the earlier stages of his coinage, which tends to be the pattern on rural sites in Essex (Haselgrove 1987). It is relatively unusual for a silver coin of Cunobelin to be found in a settlement excavation (*cf*. De Jersey 2001, 19–20), and is further evidence to support the view that this was a site of some importance, with extensive external contacts.

Brooches Colin Haselgrove

The Mucking excavations yielded a sizeable assemblage of brooches spanning the period from the fifth century BC to the Early Medieval period. All told, parts of at least 78 Iron Age or Roman brooches were recovered; a further four fragments may be from brooches. Sixty can be classified with reasonable certainty. As far as possible, the assemblage will be discussed in chronological order. Seven of the brooches are from Iron Age/Conquest Period burials, the rest are from settlement contexts (although one or two may have been disturbed from graves). Most are of copper alloy (not analysed), but about a fifth are of iron (22%), a figure higher than on many sites. For immediate purposes, the catalogue presented here includes all the Iron Age and potential Conquest Period brooches, with only those of late first century AD and later date being omitted here (plate brooches, *etc*.; see Haselgrove in the Roman vol.; Fig. 5.23 for distribution).

Brooches from Burials

Wire Brooch (iron)

B1) AML 127 (1056N × -57E; Fig. 4.55) – Wire brooch with four-coil spring and internal chord. Possible boss at

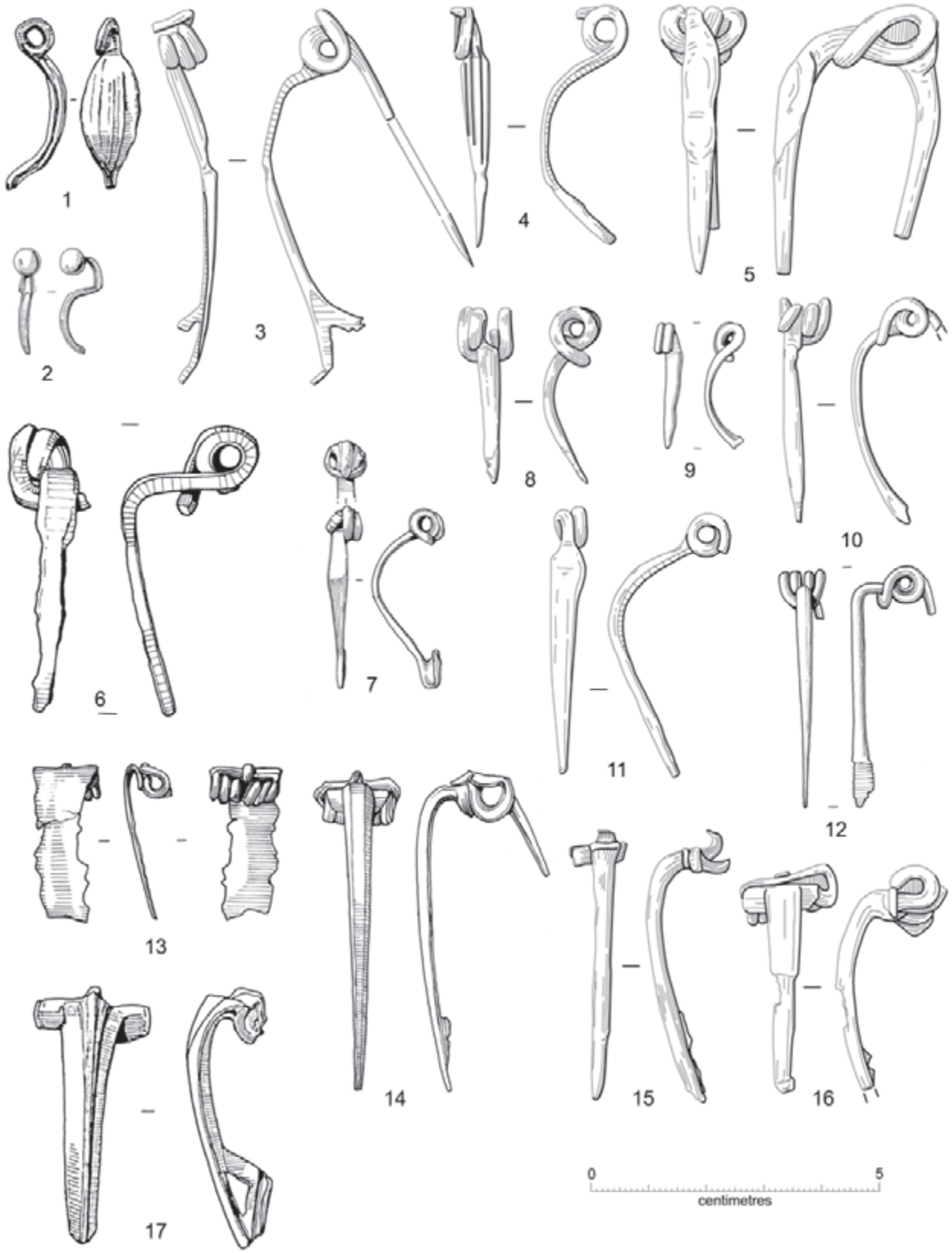
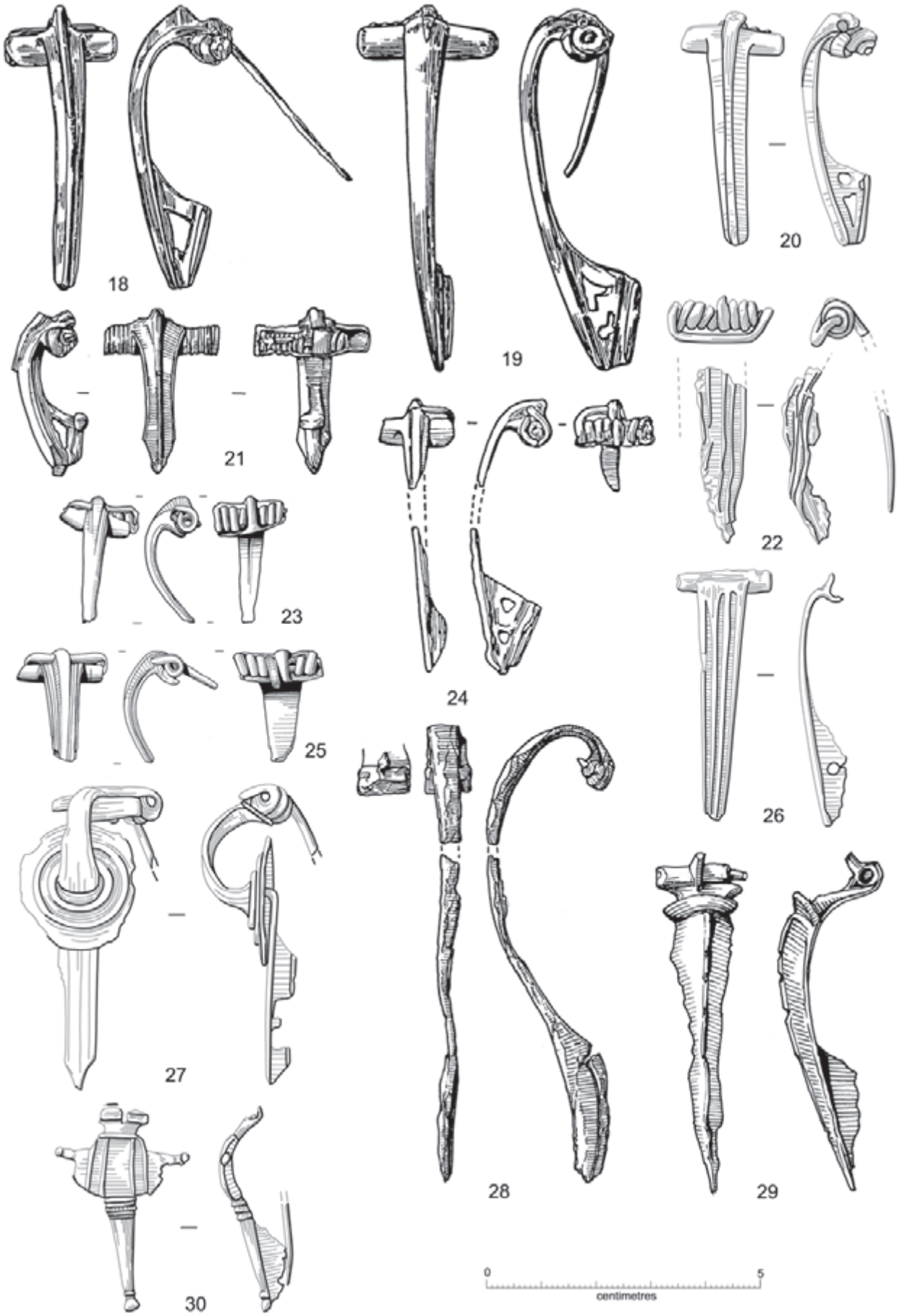


Figure 5.9. Brooches (detailed in text; also shows catalogue-entry brooch fragments – Nos. 195 and 210 – see Fig. 5.23) (continued over the next two pages).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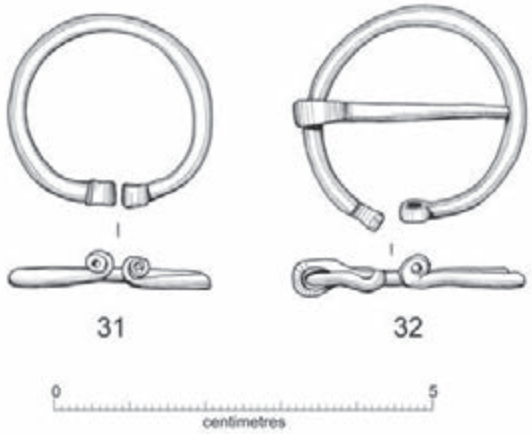
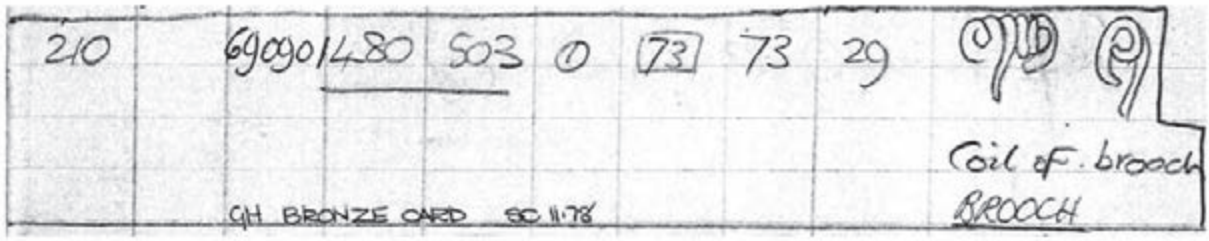




shoulder of round-sectioned bow, though is impossible to be certain due to corrosion. Part of catchplate remains, probably open, but break precludes certainty. Other iron corrosion and burnt bone in box. Tip of pin survives, corroded to another piece of metal. L. >58mm (incomplete). Dating: La Tène (D1b)–D2a on Continent; probably early to mid first century BC in Britain.
Context: Cremation 95.

B2) AML 726918 (1086N × 537E; Fig. 4.77) – Wire brooch with four-coil spring and external chord. In pieces, but complete. Open triangular catchplate, with tip of pin *in situ*. Straight wire bow with fairly sharply angled shoulder. Burnt, with wood impressions in the corrosion. L. *c.* 95mm. Dating: La Tène D2a on the Continent; probably earlier first century BC in Britain.
Context: Cremation 790.

Bronze

Simple Gaulish and Colchester

B3) AE 256 (AML 715317; 1526N × 154.5E; Fig. 4.56) – Bow and part of spring of Colchester brooch. Curving bow of rounded profile. Very short wings. Probably six-coil spring with external chord and hook. Burnt? L. 39mm. Dating: earlier first century AD.
Context: Cremation 636.

B4) AE 271 (AML 715308; 1520N × 225E; Fig. 4.56) – Bow of Simple Gaulish/Continental Colchester type. Flat, tapering bow is only very slightly curved in profile. Catchplate pierced. L. 90mm from drawing. Two coils of the spring/start of chord are all that is illustrated. Stead & Rigby (1989) Type B. Dating as B5.
Context: Cremation 651.

B5) AE 434 (AML 750399; 1338N × 618E; Figs. 4.75 & 5.23) – Complete Simple Gaulish (Continental Colchester) type, with elaborately fretted openwork catchplate. Long narrow tapering bow of flat section and profile. Eight-coil spring with external chord and hook. The extremely fine tip of the pin survives, bent up at an angle. Was this brooch ever used? Burnt? but not distorted. L. 96mm. Analysed examples are brass. A Continental form in origin, but enough found in Britain to suggest they may also have been made here. Several similar in graves at Deal (e.g. Parfitt 1995, fig. 43, 17). Dating: Augustan on the Continent; the King Harry Lane seriation implies they were still placed in British burials towards the mid first century AD; Stead & Rigby (1989) Type B.
Context: Cremation 1011, central grave in square barrow.

Colchester Derivative

B6) AE65/1 (AML 12/651; 352N × -147E) – Colchester-derivative brooch lacking pin and part of spring. Plain

bow with 'D'-shaped section; solid catchplate, with impressions of two holes not punched out. Wings over spring of at least six coils. Head lug pierced by external chord also axial bar in Harlow manner. L. 42mm. Dating: mid to late first century AD.
Context: Cremation 26 (see Roman vol., Chap. 4, RB Cemetery I).

Strip Bow, etc.

B7) AE 91 (AML 398; 1025N × -118E: too fragmentary to illustrate) – Head of hinged brooch with start of pin. Flat bow with longitudinal ribs; now broken. Burnt. Strip/Aucissa/Hod Hill type. Dating: first two-thirds of first century AD?
Context: Cremation 103.

Classifiable Brooches from Settlement Features

Earlier Bronze Brooches unrelated to Main Series

1) AE 432 (AML 744742; 1736N × 765E; Fig. 5.9.1) – Well-arched flat leaf-shaped bow decorated with longitudinal grooves. The foot (which would have been bent back) has broken off. One coil of the spring (or mock spring) remains. Hull & Hawkes (1987) Type 1Bc. Parallels: Thames at London HH2923; Barrington (Cambs) HH2931; Saham Toney (Norfolk) HH3899; and Fairfield Park (Allen & Webley 2007, no.3). Dating: La Tène B, fourth century BC.
Context: North Enclosure ditch, about 6" deep, at base of turf-line and at the top of earlier gravel fill, but not primary; found with flint-gritted sherds.
2) AE 536 (AML 820871; 2225N × 1000E; Fig. 5.9.2) – Well-arched arched bow with straight foot with catchplate. Foot bends up vertically, ending with a pronounced spherical knob. Head of brooch and pin are missing. L. >35mm (incomplete). Mansfeld 1973 *Fusszierfibel* Type F2 with A_1 foot-form. *Fusszierfibeln* are rare in Britain, and are placed by Hull & Hawkes (1987) in their group Lx; the closest parallel is a brooch found in a ditch also containing first-century AD material at St Paul's Cray, Kent (HH2437), although the foot has a somewhat smaller knob and is also moulded. A good parallel for the foot of AE 536 is a brooch from Juvigny, Les Monteux, Marne (F), although this has a thicker bow (Freidin 1982, list 33, fig. 49, 8). Dating: Hallstatt D2–3, late sixth–early fifth-century BC.
Context: GH164; residual in this context. Listed, but not illustrated, in Hamerow (1993, 158) where it is erroneously called Roman.

Simple Wire Brooches with External Chord (bronze)

3) AE 102 (AML 493; 365N × 135E; Fig. 5.9.3) – Bow and spring in four pieces. Narrow tapering bow with incised lines along edges of wider part; part of pierced catchplate. Two-coil spring with external chord, a fairly common arrangement on British *cf.* La Tène D1–D2 brooches. L. of bow >60mm (incomplete). Dating: La Tène D2a on Continent, probably early to mid-first century BC in Britain.
Context: RBI, level 4 (18–24", loam).
4) AE 275 (AML 729122; 1149.5N × 229.5E; Fig. 5.9.4) – Half of ?two-coil spring with start of apparently external chord (unless twisted in breaking?); arched, flat-sectioned bow of Nauheim character, decorated with incised longitudinal grooves, tapering to narrow foot, catchplate missing. L. >42mm (incomplete). Dating: probably first century BC, lack of catchplate inhibits greater precision.
Context: ?clearing in 'Banjo' area.

Simple Wire Brooches (iron)

5) 3370/Fe 1157 (AML 729189; 1219N × 487E; Figs. 5.9.5 & 4.80) – Incomplete wire brooch with four-coil spring and internal chord. Bow and pin both broken off; no catchplate. L. >48mm (incomplete). Round-sectioned, perhaps flattening towards shoulder, although x-ray sketch doesn't show this. Dating: La Tène D2 on Continent; in Britain, dating of this kind of iron brooch probably centres on second and third quarters of first century BC.
Context: Cremation-pit 868.
6) 2875/Fe 464 (AML 645; 468N × 90E; Fig. 5.9.6) – Part of spring with internal chord and bow of simple wire brooch. L. >51mm (incomplete). Dating: as previous.
Context: 'Belgic' RBIII main ditch, where it cuts RH25.
7) 2911/Fe 346 (AML 426; 475N × 94E) – Part of pin and two coils of spring/start of internal chord of simple wire brooch. Dating: as previous.
Context: RBI, outer ditch A.
8) 3360 (AML 823459; 1297N × 332E) – Part of simple wire brooch: four-coil spring, internal chord and part of pin; bow missing. Dating: as previous.
Context: pit with Conquest Period pottery; Enclosure 13.
9) 3409 (AML 729252; 1385N × 365E) – Simple wire brooch with four-coil spring and internal chord; tapering round bow is broken; unconserved. Dating: as previous.
Context: Ditch B32; Enclosure 13.
10) 3493 (AML 415; 440N × 170E) – Most of bow and part of spring of simple wire brooch with internal chord. Badly corroded. L. >35mm (incomplete). Dating: as previous.
Context: Adjacent to RBI ditch.
11) 3407/Fe 596 (AML 690998; 235N × 295E) – Three fragments: part of spring with ?pin and chord; part of bow?; part of pin. Probably this type.
Context: South Rings Inner & RBI.

Simple Wire Brooches (bronze) – With Flat Bow

12) AE 51#1 – 66/51 (AML 351#1; 178N × 145E; Fig. 5.9.7) – Brooch with plain flat bow (now broken). Small, solid catchplate. Half of four-coil spring with internal chord. L. 47mm. Dating: mid first century BC to mid first century AD in Britain.
Context: RBI enclosure ditch (this brooch was listed by Hamerow [1993,112] as 'cu alloy bow brooch, Roman' amongst the finds from GH12/21, which cuts RBI close to this point).
13) AE 111 (AML 502; 450N × 170E; Fig. 5.9.8) – Bow with flat 'D'-section; four-coil spring with internal chord. L. >32mm (incomplete). Dating: as previous.
Context: RBI NW corner (published, but not illustrated, by Hamerow 1993, 117 as 'cu alloy LTIII brooch' from GH30).

14) AE 114 (AML 505; 315N × 120E; Fig. 5.9.9) – Tapering flat bow and part of spring of small brooch; chord now broken. L. >21mm (incomplete).
Context: RBI – S. butt
15) AE 246 (AML 715311; 979.75N × 245.25E; Fig. 5.9.10) – Most of flat bow and part of (solid?) catchplate; four-coil spring with internal chord. L. >39mm. Dating: as previous.
Context: 'Banjo' ditch 'B36'/Enclosure 28.
16) AE 295 (AML 729142; 1184N × 481E; Fig. 5.9.11) – Tapering flat bow; no catchplate. Two coils of four-coil spring. L. >48 (incomplete). Dating: as previous.
Context: pit [4276].
17) AE 412b (AML 744722; 1324N × 590E) – Complete four-coil spring, with internal chord and start of pin. About half of flat bow with central raised rib. L. >19mm (incomplete). Dating: as previous.
Context: Double Ditch Enclosure, inner baulk.
18) AE 281 (AML 729128; 1288.25N × 250E) – Narrow flat bow, sharply angled at shoulder, half of four-coil spring with internal chord. Dating: as previous.
Context: Gully in 'Banjo' area, 3″ down.
19) AE 219 (AML 690927; 638N × 440E) – Most of flattish bow (to start of catchplate) of simple wire brooch. Half of four-coil spring, internal chord. Dating: as previous.
Context: pit [1438], Level 3.

Simple Wire Brooches (bronze) – with Wire Bow

20) AE 66/1 (AML 93; 13; 195N × 243.25E) – Near-complete bow, four-coil spring with internal chord; part of pin. Bow probably round section. L. >50mm (incomplete). Dating: as previous.
Context: Area of pits and postholes at centre of South Rings (?[520]).
21) AE 270 (AML 715307; 1237N × 137.7E; Fig. 5.9.12) – Most of a simple wire brooch. Wire bow, sharply angled at shoulder, part of solid catchplate. Four-coil spring, internal chord. L. 42mm. Dating: as previous.
Context: Pit cut into 'Banjo' ditch 'B1'/Enclosure 11.
22) AE 460 (AML 820790; 1790N × 1050E) – Sharply angled shoulder of bow, four-coil spring with internal chord and start of pin. Shoulder 'D'-sectioned, bow probably round. L. >14mm (incomplete). Dating: as previous.
Context: North Enclosure ditch, Level 6.

Ribbon Bow

23) AE 413 (AML 744723; 1439N × 644E; Fig. 5.9.13) – Brooch with plain wide, flat ribbon bow; sides of which are eroded. Bow bends sharply round at the head. six-coil spring, with external chord held by a hook (as Colchester construction). L. >27mm (incomplete). Feugère Type 9b; Titelberg Type 15b, no. 10 (Metzler 1995, Abb. 144). Rare in Britain, imported? Dating: La Tène D2b to early Augustan; later first century BC.
Context: Ditch IA10 connecting middle fields and North Enclosure.

Simple Gaulish and Colchester

24) AE 469 (AML 820799; 1909N × 1020E; Fig. 5.9.14) – Simple Gaulish (?) brooch. Tapering bow has flat section and is only slightly curved in profile. Small wings. Six-coil spring with external chord held by hook. L. 59mm. Although on the small size, this has the feel of a Continental rather than a British Colchester. Dating: late first century BC to earlier first century AD.
Context: North Enclosure primary top (Level 1).
25) AE 18 (AML 4; 95N × 215E; Fig. 5.9.15) – Bow of Colchester brooch. Slightly curved bow of rounded section. One short plain wing survives, as does most of hook and start of spring. L. *c.* 48mm. Stead & Rigby (1989) Type Cd. Dating: early–mid first century AD. Published, but not illustrated, in Hamerow (1993, 111) as 'cu alloy bow brooch fragment, first century'.
Context: GH10, NE quarter.
26) AE 293 (AML 729140; 1222N × 235E; Fig. 5.9.16) – Colchester brooch with curving plain bow, slightly tapering. Section flattened/rounded. Surviving short stubby wing is plain. Six-coil spring with external chord with remains of hook. L. >40mm (incomplete). Stead & Rigby (1989) Type Cd. Dating: as previous.
Context: 'Banjo' ditch 'B6', baulk/Enclosure 27.
27) AE 411 (AML 744721; 1680N × 758E) – Spring and bow of Colchester brooch, each now in two pieces. Bow has relatively straight profile; one wing survives intact. Rear of head has remains of two projections for hook and spring. Eight-coil spring; chord now broken off. Foot of bow has start of catchplate. L. >46mm (incomplete). Dating: as previous.
Context: North Enclosure ditch 'at 2/4'.

Colchester Derivatives

28) AE 31 (AML 332; 185N × 138E; Fig. 5.9.17) – Complete bow of Colchester derivative brooch, with central rib and wings. Lug on head has two holes for Harlow type fixing. Catchplate has one quasi-triangular perforation. L. 46mm. Dating: mid to late first century AD.
Context: GH12 NE (this brooch is not in the inventory of finds from GH12/21 in Hamerow 1993, 112, who gives this lab number to the divided brooch, No. 43).
29) AE 53 (AML 353; no co-ordinates recorded; Fig. 5.9.18) – Complete Colchester derivative brooch. Bow has a pronounced central rib ending in a crest at the head end. Well formed wings covering the 10-coil spring. External chord and axial spring bar both pass through holes in lug at top of head in the Harlow manner. Catchplate has one triangular perforation. L. 54mm. Dating: as previous.
Context: RBI, N. butt end.
30) AE 166 (AML 744; 381N × 471E) – Head and spring of Colchester derivative brooch. Bow has central rib. Ten-coil spring and external chord both pass through lug on head in the Harlow manner. Dating: as previous.
Context: GH67, Level 4 (published but not ill. in Hamerow 1993, 134 as 'Colchester' type').
31) AE 171 (AML 749; 185N × 452E; Fig. 5.9.19) – Near complete Colchester derivative brooch. Plain bow of 'D'-shaped section. Catchplate pierced by two irregular holes creating a stepped bridge. Ten-coil spring behind wings. Remains of external chord in head lug; axial spring bar passes through a second hole in lug in the Harlow manner. Lug runs into slight crest on head, echoing hook on true Colchesters. Pin broken. L. 66mm. Dating: as previous.
Context: GH63, Level 1, ex. ditch (published by Hamerow 1993, 132 as 'Colchester' type').

32) AE 218 (AML 690926; 642N × 433E; Fig. 5.9.20) – Colchester derivative brooch, complete bow (in two pieces) lacking pin and part of spring. Eight- or more-coil spring behind wings. Bow has central rib continuous with head lug, which is pierced by external chord and axial spring bar in the Harlow manner. Catchplate has one circular and one teardrop-shaped impression, which do not pierce. L. 42mm. Dating: as previous.
Context: pit [1440], level 1; Cremation 177.
33) AE 247 (AML 715312; 1002.75N × 232.5E; Fig. 5.9.21) – Largely complete brooch of Colchester derivative form, lacking pin. Bow has shallow edge mouldings, broad central rib, and crest at head. Ribbed wings, partly enclosed at ends, covering wide spring of ?16 coils, with axial bar. Harlow construction. Catchplate has single triangular piercing; tip of foot missing. L. >31mm. Dating: as previous.
Context: Kiln 18 flue?
34) AE 276 (AML 729123; 1100N × 200E; Fig. 5.9.23) – Part of bow of small Colchester derivative with lug fixing for external chord in Harlow manner. Seven-coil spring. Dating: as previous.
Context: ?fallen from machine scraper.
35) AE 296 (AML 729143; 964N × 420E; Fig. 5.9.25) – Part of ribbed and rouletted bow of Colchester derivative with lug fixing for external chord in Harlow manner (or a hook). Seven- or eight-coil spring, and part of pin. Dating: as previous.
Context: outer ditch of Double Ditch Enclosure, Level 7.
36) AE 440 (AML 750405; 1682N × 751E; Fig. 5.9.24) – Incomplete Colchester derivative brooch. Broken bow of 'D'-shaped section (in two non-joining pieces) has central grooved rib at head. Small wings over eight-coil spring with external chord passing through head lug, also axial spring bar in Harlow manner. Pin missing. Catchplate has two sub-triangular perforations. Est. L. *c.* 50mm? Dating: as previous.
Context: North Enclosure ditch, Level 6, 18–24".

Langton Down (brass)

37) 65/11 (AML 11; no coordinates given; Fig. 5.9.22) – In three pieces: eight-coil spring with chord and start of pin. Tip of pin. Lower part of bow, with longitudinal ribs, burnt and distorted, with attachments of open catchplate. Head of bow missing. L. >45mm (incomplete). Dating: Augustan/early first century AD.
Context: unclear, but probably from line of one of the conveyor belts off to the west part of the site beyond the 'Banjo' complex. Charcoal pit or cremation? [Bag marked 'charcoal pit' not cremation].
38) 66/208 (AML 690865; 510N × 430E; Fig. 5.9.26) – Tapering flat bow with longitudinal grooves; square head, small wings. Catchplate (missing the catch part) is pierced by a single small circular hole. L. 46mm (almost complete). Stead & Rigby (1989) Type Ef. Dating: Augustan.
Context: pit [1498], W. baulk.

Rosette

39) AE 297 (AML 729144; 984.1N × 319.1E; Fig. 5.9.27) – Near complete rosette brooch. Eight-coil spring with external chord held in place by a hook. Flat-sectioned bow has small wings at the head, which is sharply arched to a large slightly convex disc with concentric ribs. Parallel-sided flat foot with longitudinal grooves/ribbing. Traces of open catchplate on rear. Now in four pieces. L. >56mm (almost complete). Feugère (1989) Type 16a. Dating: Augustan?
Context: pit [6697], Level 5.

Strip Bow

40) AE 253 (AML 715314; 1052N × 191E; Fig. 5.9.29) – Hinged strip bow brooch. Collar or cross-moulding at top of bow, which has a pronounced median ridge moulding. Edge moulding to bow only survives near foot. Much of solid catchplate survives. Head folded over to form housing for hinge pin, which survives; start of pin also present. *cf.* Camulodunum Type VIb, pl. xcii, 54, where Hawkes & Hull (1947) assign it to the general family of Colchester derivatives; but similar brooches have subsequently been assigned by Hull to the wider Hod Hill family (*cf.* Richborough, no. 131, Bayley & Butcher 2004). Dating: mid–later first century AD?
Context: pit [5057], Level 2.
41) 3170 Fe 481 (AML 690822; 415N × 297E; Fig. 5.9.28) – Iron strip bow brooch with catchplate. Head of gently arched, tapering bow bends back round. Hinged (but not clear from drawing whether head rolled over). L. 83mm. *Cf.* Baldock (Stead & Rigby 1986) no. 127. Dating: probably later first century BC or early first century AD.
Context: RBI ditch secondary fill.

Hod Hill

42) AE 170 (AML 748; 312N × 388E; Fig. 5.9.30) – Near complete Hod Hill bow, broken off at hinge slot. Gently arched trapezoidal bow has grooved decoration and two small lateral projections; three parallel ribs at junction with lower bow/tapering foot, tip of which is moulded. Much of solid catchplate survives. Hawkes & Hull (1947), Class B. Dating: *c.* AD 30–65.
Context: ditch, Level 1.

Penannular

43) AE 252 (AML 715313; 1039.7/145.2E; Fig. 5.9.31) – Penannular brooch with terminals tightly rolled back at right angle to plane of ring. Fowler (1960) Type C (or possibly D?). Oval sectioned ring. No pin. Est. diam. *c.* 28mm.
Context: LIA ditch B2 (2' baulk, level 1) in Banjo-area.
44) AE 268 (AML 715305; 1290N × 158E) – Penannular brooch with rolled back terminals at right angle to plane of ring. Fowler (1960) Type C. Pin wrapped around ring; tip missing; looks straightish. Est. diam. *c.* 29mm.
Context: LIA ditch in Banjo-area, Level 4, near Grave 660.
45) AE 284 (AML 729131; 1196.2N × 133.1E; Fig. 5.9.32)

– Penannular brooch with tightly scrolled terminals at right angle to plane of ring. Fowler (1960) Type C/White Ca. Unconserved ring appears plain; oval/round section. Attachment and part of pin survives. Now in several fragments. Est. diam. 30mm.
Context: LIA ditch 'B1' in Banjo-area (Enclosure 11), Level 3, 8″ deep.

46) AE 294 (AML 729141; 1249N × 558E; Fig. 5.9.33) – Penannular brooch with moulded terminals: there is a slight swelling close to the terminal, which flares to a flat end. Fowler (1960) Type A. No pin. Unconserved ring appears plain; section round? Diam. 28mm. Flat end is similar to example from Stanwick, N. Yorks, in first-century AD context (Allason-Jones 2008, no. 8).
Context: inner ditch of Double Ditch Enclosure, Level 6.

47) 3458 (AML 449; 383.4N × 146E) – Large squashed penannular with scrolled terminals in same plane as ring. No pin. Ring may have squared section. Diameter *c.* 60–65mm. Fowler (1960) Type B.
Context: RBI Enclosure, loam, Level 1.

48) 3469 (AML 823518; 1887N × 837E) – Penannular brooch with slightly expanded knobbed terminals. Articulation loop of pin survives. Round-sectioned ring. Diam. 32mm. Fowler 1960 Type A.
Context: Ditch baulk in North Enclosure (sub-enclosure), primary, Level 10.

Possible Brooch Fragments

Iron

49) 2493 (AML 823370; 1890N × 894E) – Fragment of brooch spring, Diam. 12mm, disintegrating.
Context: North Enclosure , N. baulk 1/2, Level 1.

50) 3006 (AML 823429; 1055N × 188E) – Fragment of spring.
Context: Pit [5057], 2′ baulk, Level 3.

51) 3389 (AML 729336; 204N × 501E) – Fragment of spring.
Context: Well 1, Level 11, under GH58.

52) 3465 /Fe 1215 (AML 729247; 1364N × 382E) – Bow and part of spring, now fragmented.
Context: Ditch 'B23'/Enclosure 13.

Bronze

53) AE 273 (AML 715287; 721N × 384E) – Coil fragment.
Context: ditch [8982], Level 1.

54) AE 283 (AML 729130; 1290N × 251.9E; Fig. 5.9.34) – Flat tapering bow with sharply arched shoulder, probably from a Simple Gaulish or Colchester brooch.
Context: ?ditch in Banjo-area, Level 2, 4″ deep.

55) AE 436 (AML 750401; 1675N × 750E) – Part of pin, three coils of spring and external chord (broken off) from brooch of Colchester construction.
Context: Double Ditch Enclosure, outer ext. butt end, Level 2 (i.e. north terminal of IA10 boundary).

56) AE 510 (AML 820845; 1918N × 968E) – Bow or pin of wire brooch; one coil of spring.
Context: North Enclosure, N. middle ditch baulk.

58) AE 539 (AML 820874; 1830N × 780E) – Five coils of a spring.
Context: ditch North Enclosure (sub-enclosure), primary, Level 17, 69–75″ deep.

Uncertain, Possible Brooches (items not seen)

59) AE 2 – 66/2 (AML 94; 80N × 307.5E) – Sketch resembles the foot of a chunky brooch, e.g. Colchester Derivative.
Context: surface scrape over RBII.

Earlier Iron Age Bronze Brooches

Earlier Iron Age brooches of bronze (or iron) are relatively rare finds from settlement sites in Britain and Mucking is unusual in having yielded two examples (Nos. 1–2). The first of these is a late Hallstatt *Fusszierfibel* with a knobbed foot. Only three late Hallstatt brooches (of any kind) have been found on settlements in Britain (cf. Hull & Hawkes 1987; Haselgrove 1997). Two of these also come from the Lower Thames Valley, one from Sandy Lane, St Paul's Cray (Kent) the other from Holloway Lane, Hillingdon (Middlesex); the third was found at Castle Yard, Fathingstone (Northants). Two of these (Hillingdon, Farthingstone) have characteristics which imply insular manufacture, but those from Mucking and St Paul's Cray have little to distinguish them from Continental examples and are likely to be either imports or close copies. The *Fusszierfibel* belongs to the Hallstatt D2–D3 phase on the Continent and is likely to be late sixth or earlier fifth century BC in date. This item comes from a *Grubenhaus*, and so is perhaps curated or disturbed.

The other early find is a La Tène I leaf-bow brooch, attributed by Hull and Hawkes (1987) to their Type IBc. The series is likely to date to the fourth century BC. Comparable finds are known from other sites in eastern England, including Barrington, Fairfield Park and Saham Toney. The brooch from Fairfield Park was stratified with contemporary pottery (Allen & Webley 2007). Other finds include at least two from the Thames in the London area, with other examples from as far west as Maiden Castle and as far north as Dragonby. The Mucking example was found within the North Enclosure.

Later Iron Age Bow Brooches

A sizeable group of later Iron Age brooches was recovered, representing over two-thirds (70.8%) of the bow brooches (from their context, over half the penannular brooches are also of Iron Age date). There are two main groups: those derived from or echoing Continental La Tène D1–D2a bronze or iron forms, and those which belong to, or are derived from, the new more complex brooch types that develop after the Caesarian Conquest in Gaul and become common in the Augustan period. These latter are often made in brass rather than bronze, and only very rarely in iron; in addition, some types are now hinged rather than sprung.

Among the first group, four Mucking brooches have characteristics that mark them out as early. They include three examples with open catchplates: two in iron with four-coil springs from burials – one from Cremation 95 (No. B1) with a possible boss on the bow, the other a plain wire brooch from Cremation 790 (No. B2), this time with an external chord – and the third in bronze with a two-coil spring and external chord (No. 3). All three brooches are unlikely to be later than the mid first century BC, as is another bronze brooch from the settlement with a flat-sectioned bow of Nauheim character (albeit more arched than in the Continental series), which is missing its foot but

also has a two-coil spring and external chord (No. 4). Both the boss-on-bow and two-coil spring and external chord are typical insular characteristics at this period.

Also probably of first-century BC date are seven wire brooches all of iron with four-coil springs and internal chords and a fairly pronounced shoulder. None have catchplates surviving to indicate whether these were originally open or solid, the latter being generally the later. Simple iron wire brooches like these were not produced on the Continent after La Tène D2. In Britain, such brooches do occur in early first-century AD contexts, as at Skeleton Green (Mackreth 1981), but it clear that they finish earlier than their equivalents in bronze, which form the next major group.

The simple one-piece brooches in bronze with mostly either flat or rod bows, and a four-coil spring with internal chord, of which Mucking has 10 examples, are also derived from the La Tène D1 Nauheim form and its wire equivalents of late second-century BC date. These so-called Nauheim derivatives, however, evidently had a long lifespan in Britain and were still in common use in the mid first century AD, as is apparent from the number found at early Roman foundations, which were quite possibly still being made. None of the Mucking examples have the characteristics of genuine Nauheims, whilst the two that preserve catchplates have solid ones, which are unlikely to predate the mid first century BC. In all probability, all the Mucking brooches belonging to the series date between the mid first century BC and the mid first century AD. Metal analysis might in some cases add further precision. At other sites, about 40% of these simple one-piece brooches are made of brasses or gunmetals (e.g. Bayley 1988), which implies manufacture in or after the Augustan period. Over half, however, are in bronze, like the vast majority of La Tène D1–D2a brooches.

As on other sites, the other main category of Late Iron Age brooches at Mucking are those related to Early Roman types on the Continent, particularly the so-called Simple Gaulish brooch and its British derivative, the Colchester. The former are characterised by a long, usually straight, tapering bow (both flat sectioned and rod form) and elaborately fretted catchplates, exemplified by Nos. B4–B5 from the cemetery and a third example from the settlement (No. 23). These may be imports, but enough occur in Britain for them to have been made here too. British 'Colchesters' are generally smaller, with a more arched bow, rounder sections and simpler catchplates. At Mucking, there was one in a cremation (No. B3), and three from the settlement (Nos. 24–26). All four are in the normal size-range; there are none of the very small brooches that come at the end of the series (Stead & Rigby 1989, Type Ce). None of the Mucking finds were analysed, but Simple Gaulish and Colchester brooches are almost invariably made in brass (Bayley 1988; Bayley & Butcher 2004). This group also includes a single example of the ribbon bow form (No. 22), which is relatively rare in Britain although examples do turn up on other sites in southeast England (e.g. Ermine Street, Braughing, Herts; Olivier 1988). This type appears on the Continent before the end of La Tène D2 and is thought to be a direct ancestor of the broad bowed Simple Gaulish brooch.

The other fairly certainly pre-Conquest brooches comprise two Langton Downs and a Rosette (Nos. 36–38), both well-known types on sites in southeast England, and usually made of brass, typically with an addition of 2–3% tin. An iron strip bow brooch (No. 40) is probably also of Late Iron Age date, as may be a hinged brooch belonging to the strip bow or Aucissa-Hod Hill series (No. 39).

Early Roman Brooches

As at many sites, the main type of mid to late first-century AD brooch in the assemblage is the two-piece Colchester derivative. Analysis has shown that elsewhere they are normally of leaded bronze, with a minority in leaded gunmetal (15%) or occasionally bronze (5%). They thus mark a greater break in manufacturing tradition than that represented by the development in spring-fixing arrangement. Nine of the 10 Mucking brooches had springs held by a lug with two perforations, one for the chord, the other for the axial bar of the spring, the so-called 'Harlow' form of construction (e.g. Mackreth 1992), which is typical of southern East Anglia. None of the hinged or more complex types of Colchester derivative are apparently present. Other Early Roman brooches include a single classic Hod Hill brooch (No. 41) and a more unusual 'collared' hinged brooch which is a relative of the Hod Hill; similar brooches exist at Sheepen and Richborough. Unlike Colchester derivatives, the majority of Hod Hills (70%) were made in brass (Bayley 1988; Bayley & Butcher 2004).

Penannulars

The assemblage includes at least eight penannular brooches, which is not unsurprising given the longevity of both this brooch type and the site. Five are copper alloy, the rest iron. The basic typology of penannular brooches is now over 50 years old (Fowler 1960) and provides little more than a basis for dividing examples into broad categories based primarily on terminal form. Over half of the Mucking finds have simple rolled back terminals bent at a right-angle to the plane of the ring (Fowler's Type C, five examples); another has the rolled terminals in the same plane (Type B). The other two have flat-ended or knob-terminals (Type A).

Type A and B penannular brooches were already well-established by the later Iron Age, but Type C cannot yet be shown to occur before the first century BC. In Britain, all three types are frequent in Roman contexts and there is as yet no basis for determining when in the Roman period their manufacture ended – if at all. Complicating matters is the not-infrequent presence of Type A and Type C penannular brooches in Anglo-Saxon graves – although not apparently Type B (White 1988) – as indeed, at Mucking, where two iron Type C brooches were found in post-Roman graves (*ibid*., 11, 13; Mucking II, 249, 979). Some Anglo-Saxon finds are curated Iron Age or Early Roman brooches, as at Blewburton Hill Grave 16 (*ibid*., 7) or Portway Grave 67, which contained both a bronze Type C penannular and a simple one piece brooch (Cook & Dacre 1985, 42, fig. 67, nos. 1, 8). Other examples could well be of late Roman or early Medieval manufacture (cf. White 1988), but criteria for systematically differentiating them have yet to be elaborated.

At Mucking, the three Type A–B penannulars are all from Iron Age or Early Roman contexts. The Type C brooches divide between pre- and post-Roman contexts,

but it is perhaps relevant that all three iron examples are from Anglo-Saxon contexts (including the two grave finds), whilst three out of four bronze examples are from Late Iron Age deposits. Equally, the single bronze Type C brooch in an Anglo-Saxon context stands out by being much larger than the three from Iron Age contexts.

The dating of Iron Age and Roman brooches in Britain still remains heavily reliant on the chronology of equivalent types on the Continent, together with a certain amount of guesswork on how this translates across the English Channel. In time, it should be possible to establish more precise limits for different types by focusing on their occurrence in successive dated horizons, as for example Mackreth (1981) has done for Skeleton Green, but unfortunately this is not feasible for the Mucking assemblage.

In general, the brooches are distributed fairly widely across the main areas of Iron Age and Roman activity. It may however be relevant that both the earlier Iron Age brooches are from the northern end of the site, with the La Tène B brooch actually coming from the ditch of the Middle Iron Age Northern Enclosure (Fig. 5.23). Although not in a primary deposit, it may not be far removed in time from the foundation of the enclosure.

The earlier group of later Iron Age brooches from settlement contexts (those with two-coil external chords and in iron, and also bronze penannulars) are perhaps more concentrated in the area of the Banjo and RBI enclosures, but not exclusively (Fig. 5.23). If there is a distinction, it does not apply to the brooch types that became common from the Augustan period onwards, or indeed those of post-Conquest date. The burials and their associated brooches do however divide: those of Late Iron Age date being towards the centre, whilst those of Roman date are in the southwest. Two points might be made in relation to these. Firstly, the Simple Gaulish Brooch from Cremation 1011 at the centre of a square barrow is in such fine condition as to raise the question of whether it was ever used. Secondly, several of the more unusual Roman brooch types are from also burials. Overall, the range of brooches included with burials at Mucking is almost identical to the series found with cremations of similar date at Stansted Airport (Havis & Brooks 2004).

Although most brooches are from Iron Age or Roman contexts, a significant minority were found in Anglo-Saxon features. Eight identifiable Iron Age or Roman brooches come from *Grubenhäuse*r, as well as several fragments (this amounts to just under a quarter [23.5%] of identifiable brooches from contexts which can be given a reasonably close date). No doubt many of these are simply accidentally present, resulting from the disturbance of earlier features, and one or two may be in fact of later manufacture (e.g. the iron Type C penannular brooch from *Grubenhaus* 26), but the possibility that some of them had been curated should not be overlooked.[3] For the most part, they form a fairly representative sample of the commoner brooch types, perhaps with a slight bias to the heavier Colchester Derivatives, but intriguingly also include the earliest brooch found on the site, the Hallstatt D2–3 *Fusszierfibel*.

Although Mucking's settlement-derived assemblage is on the small size to quantify reliably, a few observations can be made based on the trends at other late Iron Age and/or Roman sites in southeast England in general and southern East Anglia in particular. Figure 5.10 shows how the proportions of commoner types (48 brooches from settlement contexts) compare to the mean values established from a study of 20 sites in southern England (Haselgrove 1997; 2003). As can be seen, most of the values are less than 10% from the mean and thus quite possibly down to chance. The two groups that stand out are the La Tène D brooches and the penannulars.

Only a handful of sites among the comparative group have similarly high proportions of La Tène D brooches: Fison Way, Norfolk, where brooch deposition peaked in the first century BC and again in the later first century AD (Mackreth 1992, 128), is closest; then Silchester and Hayling Island temple, both of which also have intensive first-century BC activity. The two latter sites (but not Fison Way) also have above-average proportions of simple wire brooches in bronze (Nauheim derivatives), which

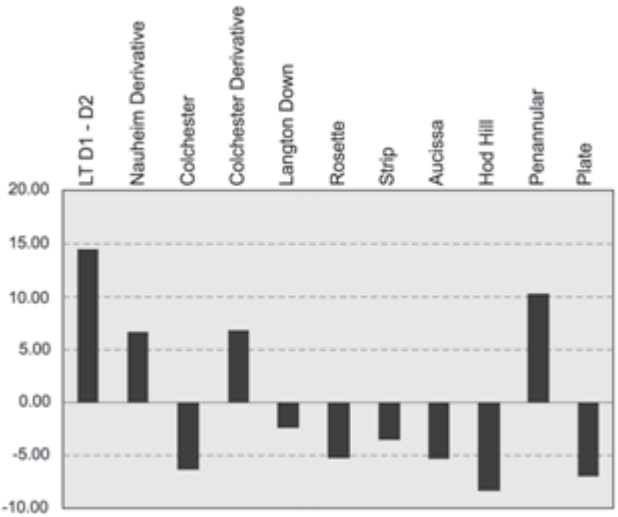


Figure 5.10. Brooch-type frequency, with the assemblage shown as percentage deviations from the mean values for the brooch assemblages from 20 Late Iron Age–Early Roman sites in southeast England (see Haselgrove 1997); Mucking, for example, has more La Tène D1–D2 and penannular brooches than average, but fewer of types such as Hod Hill and plate brooches.

also start in the first century BC. The only site where penannular forms are over-represented to the same extent is Cadbury Castle hillfort, far away in Somerset. The answer may well be that at both sites we are seeing the effect of lumping pre- and post-Roman penannular brooches together. However, two East Anglian sites do have above-average numbers of penannulars: Fison Way, which has already been mentioned, and the Colchester colonia.

A strong presence of Colchester-derivatives is typical of many East Anglian sites intensively occupied in the mid to late first century AD, including Colchester colonia, Harlow temple and Heybridge in Essex; Saham Toney and Stonea Grange, in Norfolk; and Camp Ground, Earith, and Langwood Farm, Chatteris, in Cambridgeshire (Haselgrove 2003). As already noted, the 'Harlow' manner of fixing the springs, as on all but one Mucking brooch, is particularly typical of southern East Anglia. The collections from the two Essex coastal sites of Colchester and Heybridge also provide a good match for certain other aspects of the Mucking assemblage, notably the low representation of Colchesters and other Augustan types and strip bow forms, although the Colonia especially has a far stronger presence of Hod Hill and Plate brooches, reflecting the popularity of these types with the military.

The under-representation of Colchesters at Mucking and these other Essex sites might seem odd, given both the geographical location and its commonness in southeast England (it is the most abundant type of all at the comparator sites). The Colchester – and to a lesser extent other Augustan brass types like the Langton Down or Rosette – was especially popular at sites that were in direct contact with the Roman world from *c.* 20 BC–AD 40, such Sheepen, Braughing-Puckeridge and St Albans. It was also much favoured for burials, notably at King Harry Lane (Stead & Rigby 1989). This finds an echo at Mucking, where three of seven Colchesters are from cremations, and three of five brooches in earlier burials are Colchesters.

In sum then, the Mucking brooch assemblage broadly follows regional and national trends, but stands out for its above-average representation of Late Iron Age forms of first-century BC date – as opposed to Roman-influenced ones – presumably reflecting the intensity of settlement at this period.

Other Metalwork

Copper Alloy (Grahame Appleby)

Only 39 pieces of copper alloy attributable to the Iron Age were recovered (including undiagnostic pieces or scraps and lumps; see Fig. 5.11). This low quantity of metalwork is unexpected in view of the area and intensity of excavation. A similarly low number of finds is also seen in the Roman assemblage. The lack of metal-detecting ahead of surface-stripping may account for the low volume recovered, as might also the lack of sieving of feature fills. Despite these caveats, the range of copper alloy objects is varied and includes personal items (pins and rings) and a pair of tweezers. Harness gear (terret rings, split-rings) and studs and nails were also found distributed across the site.

The bronze handled iron knife (No. 52) is unusual, but its earlier identification as a mirror has been discounted (we are grateful to Jody Joy, formerly of the British Museum, for confirming this identification). All the objects, with the exception of a ring that can be assigned a Middle Iron Age date (No. 463) can be placed in the later pre-Roman Iron Age, possibly spanning the Conquest Period (the terret ring form is found on both later Iron Age and Roman sites, for example Kelvedon, Essex and Saham Toney, Norfolk, and the military sites at Castleford, Yorks and Wroxeter, Shropshire). The split-ring may have been used for a variety of functions. The swan-head pin, however, provides evidence of occupation spanning the Late Bronze Age/Early Iron Age transition, *c.* 900 to 700 BC. With very few of these pins found in secure contexts, their use as a chronological indicator is problematic (Cunliffe 2005, 458), but they do reflect Continental contacts and trade and exchange. The dumb-bell-shaped toggle (No. 65/19) presents more of a conundrum than its small size would suggest, as it is stylistically similar to larger toggles found in association with bits. Examples have been reported to the Portable Antiquities Scheme for areas in eastern England, including Langford and Good Easter, both in Essex. It is not suggested here that the examples from these sites and Mucking were associated with bits, but they do share functional attributes, namely a central rectangular perforation for tracing leather straps (see Foster 1999, 137), and it is a matter of speculation how toggles of this size would have been used.

All of the items would appear to have been discarded or lost, as opposed to deliberately placed or deposited, and in the case of the knife, this may have been disturbed from its original location during surface stripping.

Cat. No. 65/19 (AML371; Fig. 5.12.2) – Dumb-bell toggle with flattened cylindrical body, circumferential grooves, a central rectangular perforation for attachment, and slightly domed roves. Length 25mm, width *c.* 7mm. A similar example was found near Good Easter, Essex, during metal-detecting (UKDFD ref: 10735). Numerous similar examples have been reported to the Portable Antiquities Scheme, such as the example from Langford, Essex (PAS ref: ES'S'-4C1D87). Dated to the first century BC to first century AD; unlocated, recovered from the area of the ABC Enclosures.

Cat. No. 65/21 (344N × -61E) – Described during the MPX-phase as a possible copper alloy and iron bracelet; no further details (missing); recovered from the ABC Enclosures.

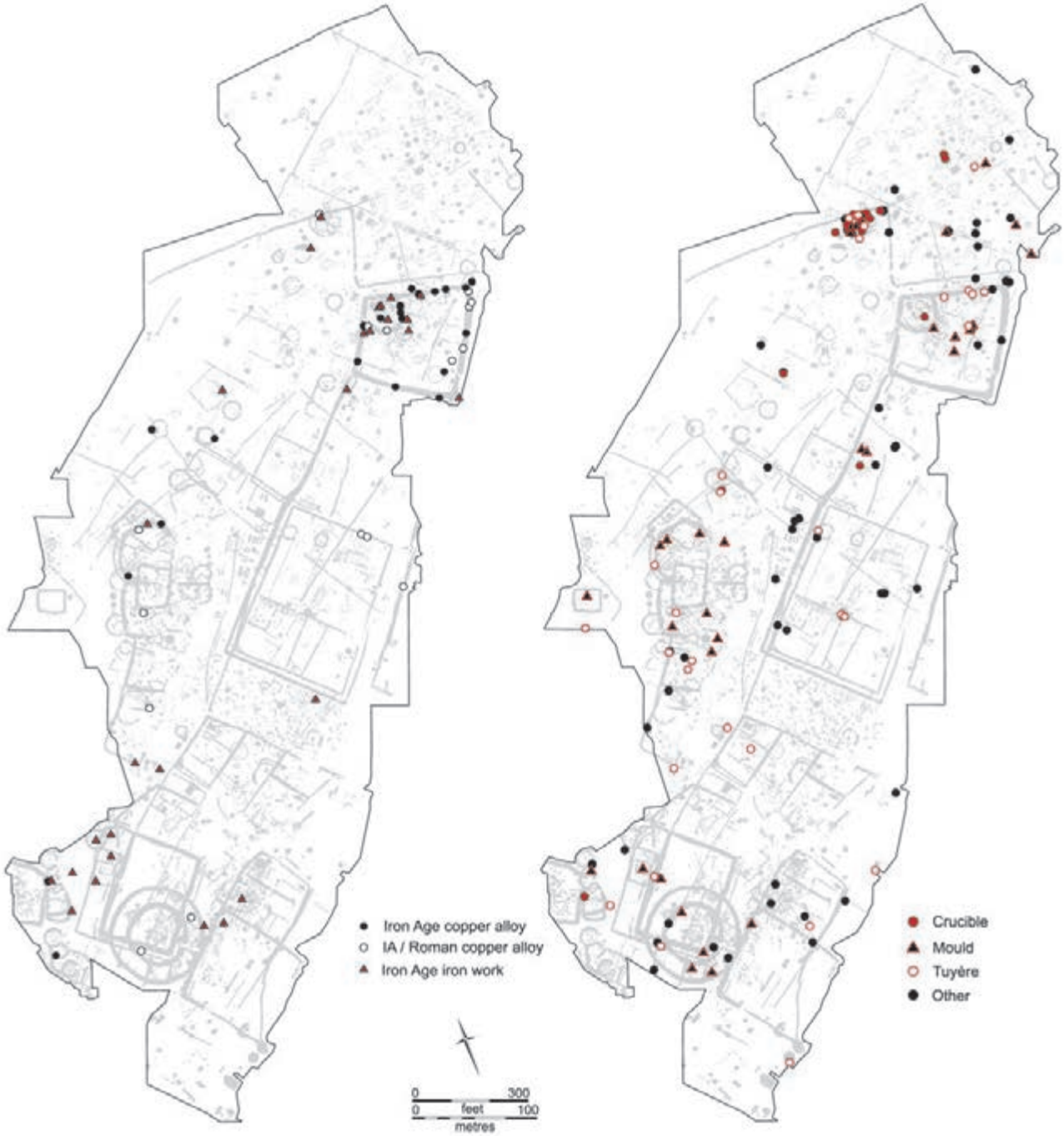


Figure 5.11. Distribution of metalwork (left) and, right, metalworking debris.

Cat. No. 52 (AML352; 146N × -40E; Fig. 5.12.7) – An iron knife with a heavy cast bronze handle, length *c.* 50mm, with a large ring, diameter 30mm, and two curving stems with the blade recessed into a tight groove. The blade is wide with a curved edge on one side, length 74.5mm, width 44.5mm. Unfortunately, the surface is corroded and the blade has broken, with an irregular longitudinal break on the 'upper' edge. It is unclear, therefore, if the knife was double-edged and symmetrical. (Note, there is some doubt as to the precise location of this find, as it is variously ascribed to RHs 2 and 24, both though being within the area of the ABC Enclosures.)

Cat. No. 122 (AML653; 250N × 320E; Fig. 5.12.5) – Complete copper alloy miniature two-lipped moulded and milled terret ring, with a 'D'-shaped cross-section and a pair of transverse milled mouldings on outer edge where the ring narrows. Internal diameter 18mm, width 7mm. Space between mouldings 7.5mm. The terret is in excellent condition with little or no wear. Similar examples have been found in Norfolk at Saham Toney (Bates 2000) and Bungay (PAS ref: NM'S'-A4E543). Miniature terrets date between the second century BC and the first century AD and are usually considered to be part of a horse and/or cart harness. However, as Stead observes (2006, 68), these

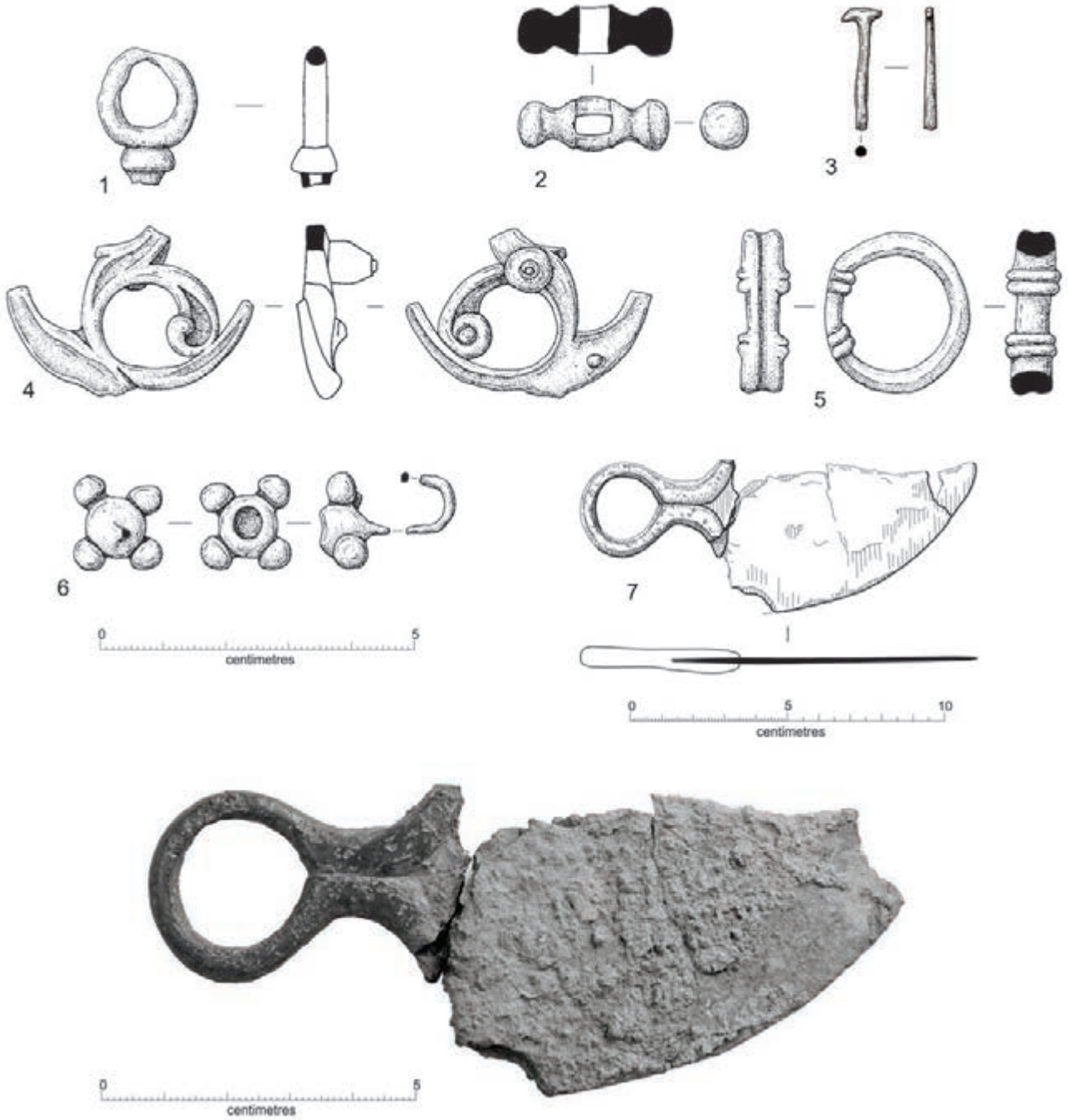


Figure 5.12. Copper Alloy metalwork: 1) possible baldric ring (Cu 544; 1691N × 991E); 2) toggle (65/19); 3) bar/pin (Cu 512; 1860N × 1058E); 4) open-work mount or Phalera *(Cu 544; 1691N × 991E); 5) terret ring (Cu 122; 250N × 320E); 6) cruciform stud (Cu 465; 1805N × 785E); 7) knife with iron blade (Cu 52; 146N × -40E), with photograph of same below.*

may also have been used as scabbard suspension loops (cf. Webster 2002, 114, cat. no. 116). From area of RBI Enclosure.

Cat. No. 259 (AML715310; 1052N × 191E) – Complete set of corroded and pitted copper alloy tweezers. Length 43.5mm, width 4mm.

Cat. No. 278 (AML729125; 1150N × 152E) – Very corroded and distorted copper alloy ring (fragmentary); diameter *c.* 20mm, thickness *c.* 2mm. Possible finger-ring; recovered from the Banjo-area.

Cat. No. 279 (AML729126; 1287N × 238E) – Corroded slightly tapering and curved copper alloy tube fragment with possible iron core; round cross-section. Length 18mm, diameter 8mm, maximum internal diameter 5mm (core); recovered from the Banjo-area.

Cat. No. 391 (AML744686; 1257N × 773E) – Two roughly rectangular very thin undecorated fragments of copper alloy sheet, possibly from a larger piece. The surface is in reasonable condition with a deep green patina. Four holes are present in one piece, all most likely the result of corrosion. A straight edge may survive on the other piece. Both measure approximately 11mm × 28mm and *c.* 0.5mm in thickness. There is a distinct possibility these are

fragments of repoussé work; recovered from the Double Ditch Enclosure inner ditch(?).

Cat. No. 417 (AML744727; 1646N × 862E; Fig. 4.72) – Four scraps of copper alloy, possibly associated with Cat. No. 418; recovered from the North Enclosure.

Cat. No. 418 (AML744728; 1646N × 862E Fig. 4.72) – Possibly associated with Cat. No. 417, a piece of copper alloy sheet or strip, corroded and friable. One edge is preserved: 16mm long; thickness *c.* 1.5mm; recovered from the North Enclosure.

Cat. No. 443 (1795N × 838E; Fig. 4.52) – Possible rim fragment from a copper alloy vessel or plate with a narrow strip attached by rivets along the 'outer edge'. The rivets may represent either a repair or attachment points. Length 44mm; recovered from the sub-enclosure, North Enclosure.

Cat. No. 446 (AML750411; 1900N × 966E) – Rectangular fragment of copper alloy sheet or strip, heavily corroded; length 19mm, width 10mm; recovered from the North Enclosure.

Cat. No. 447 (1893N × 922E) – Corroded copper alloy blob; no further details (not seen); recovered from the North Enclosure.

Cat. No. 452 (AML750417; 1511N × 382E; see Fig. 4.30) – Very corroded ring with lug or remnant pin shaft; probable ring-headed pin. Diameter 18mm, thickness *c.* 4mm; recovered from gully of Roundhouse 82.

Cat. No. 458 (1717N × 760E) – Two fragments of folded copper alloy sheet (and numerous very small pieces), one piece possibly riveted, measuring 13mm × 13mm and 10mm × 18mm; recovered from the North Enclosure.

Cat. No. 462 (AML820792; 1860N × 1058E) – Round cross-sectioned split wire or thin bar, with one 'antennae' bent through 90°. Length 18mm, weight <1g. Possible hook or fastening; recovered from the North Enclosure.

Cat. No. 463 (AML820793; 1905N × 997E) – Small copper alloy ring. External diameter 16.5mm, internal diameter 11mm. The thickness of the ring is irregular, forming a 'D'-shaped cross-section, and possibly worn. Such rings could be used for a variety of purposes. Its discovery within the primary fill of the North Enclosure ditch suggests it is possibly Middle Iron Age in origin, or earlier.

Cat. No. 465 (AML820795; 1805N × 785E; Fig. 5.12.6) – Corroded and pitted decorative small cruciform stud with central circular recess, possibly once for an enamel insert or similar. Each arm consists of a hemispherical lug. The pin is broken, but consist of a short, tapering shank that has been bent over; dimensions 18 × 19mm; weight 5g. Possibly Medieval; recovered from the sub-enclosure, North Enclosure.

Cat. No. 466 (AML820796; 1790N × 1050E) – Fragment of copper alloy strip, 26mm long and *c.* 6mm wide. Approximately 6mm of one end is laterally folded to form a small closure, clasp or grip; recovered from the North Enclosure.

Cat. No. 467 (AML820797; 1860N × 874E) – Small fragments of copper alloy sheet, up to 6mm long/wide; very fragile. Several pieces are adhered to a large lump of matrix; recovered from the sub-enclosure, North Enclosure.

Cat. No. 468 (1846N × 876E) – Heavily corroded and pitted split ring. Round cross-section with straight transverse terminals. Width 4mm, internal diameter 17mm, weight 6g. Probable harness or strap/scabbard fitting; recovered from the sub-enclosure, North Enclosure.

Cat. No. 470 (AML820800; 1828N × 878E) – Fragment of a small, corroded copper alloy tube. Length 9mm, diameter 5mm; recovered from the sub-enclosure, North Enclosure.

Cat. No. 471 (AML820801; 1748N × 1044E) – Corroded flat-headed copper alloy nail or rivet with square cross-sectioned shank. Length 28mm, weight 2g; recovered from the North Enclosure.

Cat. No. 484 (AML820819; 1907N × 907E) – Teardrop-shaped copper alloy runnel or casting spill, flat on one surface, rounded and wider at one end. Weight 3g; recovered from the North Enclosure.

Cat. No. 487 (AML820822; 1805N × 785E) – Small round domed object with fragment of shank; possible pin head. Diameter 5mm; recovered from the sub-enclosure, North Enclosure.

Cat. No. 499 (2102N × 660E) – Described during the MPX-phase as a copper alloy round-headed stud and scraps; no further details (missing).

Cat. No. 512 (1860N × 1058E; Fig. 5.12.3) – Small rectangular to round cross-sectioned bar or pin with a 'T'-shaped flattened head. Length 19mm, weight <1g. Possible votive model tool; recovered from the North Enclosure.

Cat. No. 516 (AML820851; 1910N × 1050E) – Scrap of copper alloy sheet, irregular in shape, with possible traces of compression marks due to clipping/reduction. Length 25mm, thickness 1mm.

Cat. No. 532 (1620N × 980E) – Small scraps/pieces of copper alloy within concreted soil matrix; recovered from the North Enclosure.

Cat. No. 538 (AML820873; 1810N × 776E; Fig. 4.52) – Fragment of thin copper alloy strip 15mm long, *c.* 7mm wide, adhered to a piece of iron. Found with several fragments of very degraded iron, possibly a blade fragment; recovered from the sub-enclosure, North Enclosure.

Cat. No. 541 (1536N × 214E; Fig. 4.30) – Described during the MPX-phase as an iron ferrule with a possible copper alloy band, possibly lead-weighted; no further details (missing).

Cat. No. 544 (AML820879; 1691N × 991E; Figs. 5.12.1 & 4.4) – Two items recovered from a pit adjacent to Roundhouse 89, within the southeast corner of the North Enclosure. The first item is a broken open-work copper alloy mount or *phalera* of entwined 'boss and petal' trumpet(?) motif, measuring *c.* 40mm in diameter, with a top central knob or knop (5mm high), and flat on the back (Fig. 5.12.4). Similar examples have been found at Swanton Morley, Norfolk (Hutcheson 2004, 112, no. 71) and Castleford, Yorks (Bishop 1998, 80, no. 306). Both are described as horse harness mounts, with Hutcheson providing a Late Iron Age attribution and Bishop highlighting the problem of dating these items (*ibid.*), with a mid first century AD date possible. However, two similar, but complete rings were found associated with a Late Iron Age sword recovered from cart-burial Number 3 at Wetwang Slack, Yorks (Stead 2006, 185, no. 174a–b and fig. 90), and described as belt fittings. The second object is a small corroded ring with a worn loop, *c.* 17mm in diameter, possessing a protruding oval (8mm × 9mm) knob or knop, with a concave chamfer from the mid-point to a small circular hollow/recess (Fig. 5.12.1). Similar examples have been found during metal-detecting and reported to the Portable Antiquities Scheme and have been identified as baldric rings (Wilson forthcoming).

Cat. No. 550 (AML820885; 1925N × 1065E) – Square cross-sectioned copper alloy bar, pitted and corroded, slightly bent. Length 35mm, width 3mm. It is unclear whether this is a complete object due to the degree of metal-loss at one end, and its use is unclear; recovered from the North Enclosure.

Cat. No. 554 (1900N × 1055E) – Small piece of copper alloy wire; recovered from the North Enclosure.

Cat. No. 577 (AML820807; 1828N × 822E) – Scraps of copper alloy (sheet?) and dust, previously described as laminated; recovered from the sub-enclosure ditch, North Enclosure.

Cat. No. 581 (1720N × 1012E) – Corroded copper alloy flat-headed rivet. Length 18.5mm.

Cat. No. 589 (AML820884; 1900N × 1055E) – Fragment of rounded cross-sectioned copper alloy pin or wire, curved; length 29.5mm, thickness 3mm. Possible brooch pin; recovered from the North Enclosure.

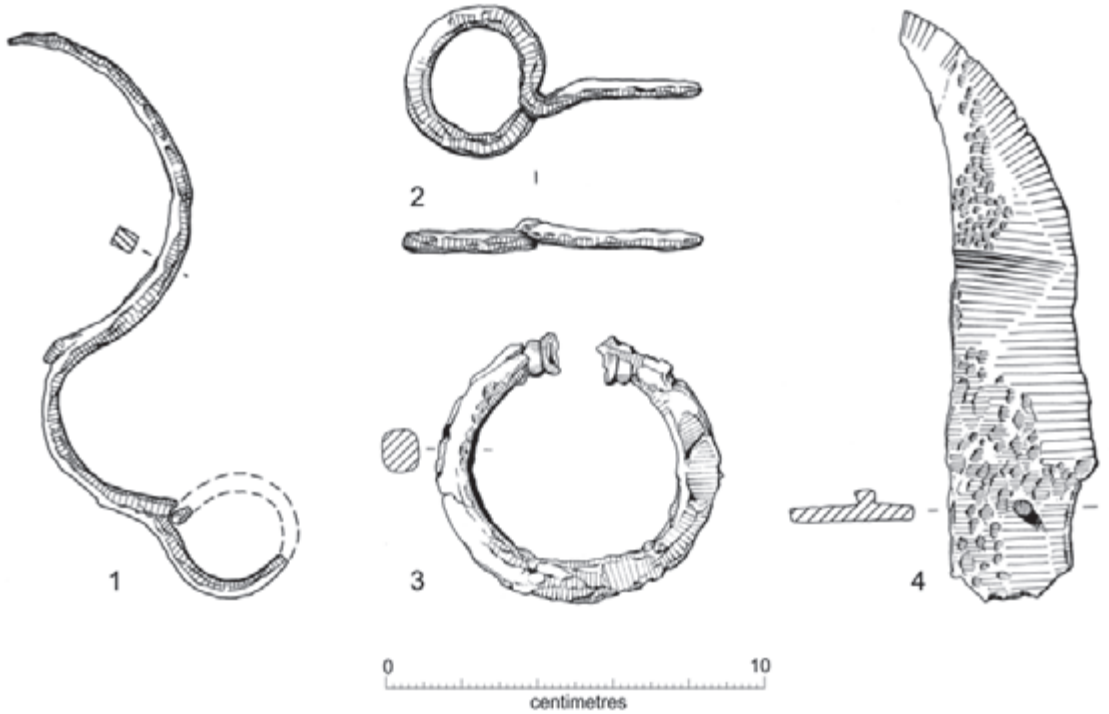


Figure 5.13. Ironwork: 1) latch-lifter (Fe 3384); 2) ring-headed pin (Fe 3462; 824.6N × 637E); 3) penannular ring (Fe 2980; 344.6N × 61.6E); 4) cleaver/blade (Fe 2032; 1285N × 198E).

Ironwork (Quita Mould)

Of the *c*. 3325 pieces of ironwork recovered from the site's settlement contexts, only some 35 pieces of ironwork were recovered from secure Iron Age contexts (Fig. 5.11).[4] This includes the remains of a small ring, 3429, which was found in a pit fill dating from the Early Iron Age onward. Fragments of a larger, round-sectioned ring, 3468, came from the primary fill of the North Enclosure ditch dating to the Middle Iron Age. Two small pieces possibly broken from blades were found: 1990, in a pit possibly of Early Iron Age date, and 1829, in a ditch of Early–Middle Iron Age date. The remains of a heavy blade with a riveted strap tang complete with minerally preserved wood from the handle (3644) was found in the North Enclosure Ditch and is thought to be of Middle, or possibly Late Iron Age date.

A small ring terminal with a stem of cast leaded copper alloy with an iron collar around the stem, 3488, was found in the roundhouse gully (RH21) in a context of later Middle Iron Age or possibly Late Iron Age date. The broken ring terminal is difficult to identify; it may come from a cart or harness fitting.

A riveted collar ferrule, 3475, was found in a primary deposit within the North Enclosure's sub-enclosure, dated to the Middle to Late Iron Age. A fragment of curved section broken from a socket or a conical ferrule, 3272, was recovered from an undated context at the entrance of the North Enclosure, and is likely to be of similar date. Another socket of thin sheet, possibly broken from a weapon or other hafted implement was found in an Iron Age pit [3159].

Two ring-headed pins of distinctive Iron Age type (Hodson 1964, 103) were recovered, each with a plain, undecorated head. One, 3869, with a long, straight stem came from the main ABC's compound (Enclosure 4). The other, 3462 (Fig. 5.13.2), with a shorter stem and a slightly bent shoulder occurred residually within the second-century fill of a posthole and was associated with a fragment of blade or strap. The posthole was not part of an obvious structure. The bent neck and plain head of the shorter pin may suggest it to be early (Dunning 1935, 274). Ring-headed pins are relatively rare in East Anglia. A long, plain copper alloy example was found at the Iron Age and Romano-British settlement at Saham Toney, Norfolk in a context that may date as late as the second quarter of the first century AD (Brown 1986, 35 and fig. 23, no. 154).

A much smaller pin with a pierced ring head (3104) was found in a Late Iron Age or first-century AD ditch fill. It is of a size suitable for the pin of a brooch or buckle. It had been conserved but not X-radiographed when recorded, so any identification made can only be tentative. A small annular ring (3430) and parts of a larger example, 3451, came from pits thought to be of probable Late Iron Age date.

A large, upward curving blade with the remains of a riveted strap-tang (2032; Fig. 5.13.4), likely to be a small cleaver, came from an early first-century AD

pit in the Banjo. A tapering, downward curving blade (3484), a small riveted sickle blade, was found in an unphased pit. It is likely to be of Early Iron Age date. Part of a broken blade from a pair of shears, 3657, was found on the edge of a circular gully. Also of possible Iron Age date is a latch-lifter (3375).

A pair of straight-armed tweezers (3527) was found in the Inner South Ring. It is comparable to, if slightly more delicate than, a pair of Iron Age or Roman date from Dragonby (Manning & MacDonald 1996, 301, no. 60 and fig. 11.37). The penannular spring may suggest an Iron Age date for both (*ibid*.). Tweezers may be put to a range of uses including depilation, surgical procedures and textile processing. There is little to distinguish this from a simple cotter pin, save that the arms taper in thickness toward the straight-ended terminals.

1829 (2099N × 647E) – Iron possible blade fragment.
1990 (1859N × 804.6E) – Iron possible blade fragment.
2032 (1285N × 198E; Fig. 5.13.4) – Iron cleaver with curving, hollow back and convex edge meeting at an upward pointing tip and nailed strap-tang. Length 160mm, blade width 38mm; pit in Belgic Banjo.
2980 (344.6N × 61.6E; Fig. 5.13.3) – Penannular ring with decorative terminals and round-sectioned arms with moulded terminals formed by wrapping wire around the arm. Diameter 75mm, terminal width 10mm.
3035 (1828N × 825E) – 'U'-shaped hook . Length 55mm, width 46mm (?Iron Age).
3104 (655N × 160E) – Iron small pin with round-sectioned stem and pierced ring head. Length 47mm, head-diameter 11mm.
3159 (409N × 102E) – Iron broken socket fragment. Length 42mm.
3248 (638N × 226E) – 'U'-shaped staple. Length 34mm (?Iron Age).
3272 (1791N × 762E) – Iron fragment of curved section from broken socket or conical ferrule; North Enclosure entrance.
3330 (235N × 400E) – Joiner's dog. Length 44mm (?Iron Age).
3352 (1797N × 880.3) – Joiner's dog (?Iron Age).
3375 (2017N × 630E; RH102). Latch-lifter of square section with crescentic profile, straight neck and curled loop terminal. Length 210mm (?Iron Age).
3384 (1828N × 878E; Fig. 5.13.1) – Iron latch-lifter with crescentic profile, curved neck and large ring terminal. Length 160mm; North Enclosure, sub-enclosure ditch, west side of causeway (?Iron Age).
3429 (1861N × 807E) – Iron ring fragment, poor condition, section uncertain. Diameter 24mm.
3430 (1644N × 718E) – Iron round-sectioned ring. Diameter 38mm.
3451 (1644N × 718E) – Iron round-sectioned ring fragments. Diameter 45mm.
3462 (824.6N × 637E; Fig. 5.13.2) – Iron ring-headed pin, with sinuous neck and a pointed stem of round section. Length 80mm, ring diameter 40mm.
3468 (1893N × 914E) – Iron ring of round section, fragmentary. Diameter 32mm; ditch, North Enclosure.
3475 (1885N × 833E) – Iron collar ferrule of thin strap secured by two small rivets. Diameter 26mm, width 27mm; ditch, North Enclosure, sub-enclosure.
3484 (1642.6N × 393.6E) – Iron tapering downward curving blade with convex back, concave edge at pointed tip, with rivet hole. Length 124mm, blade width 30mm.
3485 (453N × 58E) – Broken ring fragment (?Iron Age).
3488 (344.6N × 61.6W; RH21) – Copper alloy and iron fitting, cast stem with ring terminal of copper alloy with an iron collar around the stem. Length 38mm, ring diameter 21mm.
3527 (unlocated, North Inner Ring/South Rings). Iron tweezers with penannular spring and straight arms of plano-convex section. Length 57mm, arm width 5mm.
3644 (1797N × 777E) – Iron cleaver with fractured blade and wide strap-tang with two, central, round-sectioned rivets. Minerally preserved organic remains present on the tang and rivets. Length 125mm, blade width 38mm.
3657 (467N × 101.6E) – Iron fragment of straight-backed blade and beginning of a round-sectioned tang. Length 44mm, blade width 36mm.
3866 (263N × 0E) – Nailed binding (?Iron Age).
3869 (370N × 113–128E) – Iron ring-headed pin, long rectangular-sectioned strip stem with pointed tip, curled to form a large, ring-headed terminal at the other. Length 290mm, ring-diameter 78mm.

Metalworking Evidence

The following section omits the site's slags (365kg), whose analyses were published within the *Site Atlas* (McDonnell 1993). The relatively low quantity of the period's slag led McDonnell to conclude:

> Smithing was carried out in the Iron Age and Romano-British periods, and both smelting and smithing debris in the Iron Age context is very low and would normally be ignored as 'background' level. It must only be interpreted as evidence from smithing having been carried out in this period (McDonnell 1993, 33, see also table 5).

However, based on Figure 5.15's distribution plots, it must be suspected that not all of the relevant site material had then been made available for study.

Crucibles, Moulds and Tuyères (David Dungworth and Justine Bayley)

The finds described and discussed here are all ceramics used during metalworking. Each fragment was carefully examined to assess the extent and nature of vitrification as well as the overall shape (and so function) of the original artefact. The crucibles and moulds were extracted (by JB) from several boxes of possible moulds and crucibles that had been separated from the large bulk of fired clay finds by the Mucking Post Excavation team. The selected moulds and crucibles were all analysed qualitatively by energy dispersive X-ray fluorescence (EDXRF) to identify if the ceramics had been used in working metal. In addition, where possible, the sort of metal being worked was determined using EDXRF (methodological issues relating to the use of EDXRF for the analysis of moulds and crucibles are explored at some length). In some cases the EDXRF signals were so weak that no reliable interpretation could be given and the results are not considered diagnostic (a more detailed examination of the use of EDXRF for the determination of the type of alloys melted is given below). All of the crucibles, moulds and tuyères are listed in tables below and a selection of these are described in detail. General themes (distribution, date and function) are discussed in a separate section.[5]

Interpretation of EDXRF Data

Table 5.10 shows the proportions of crucibles and

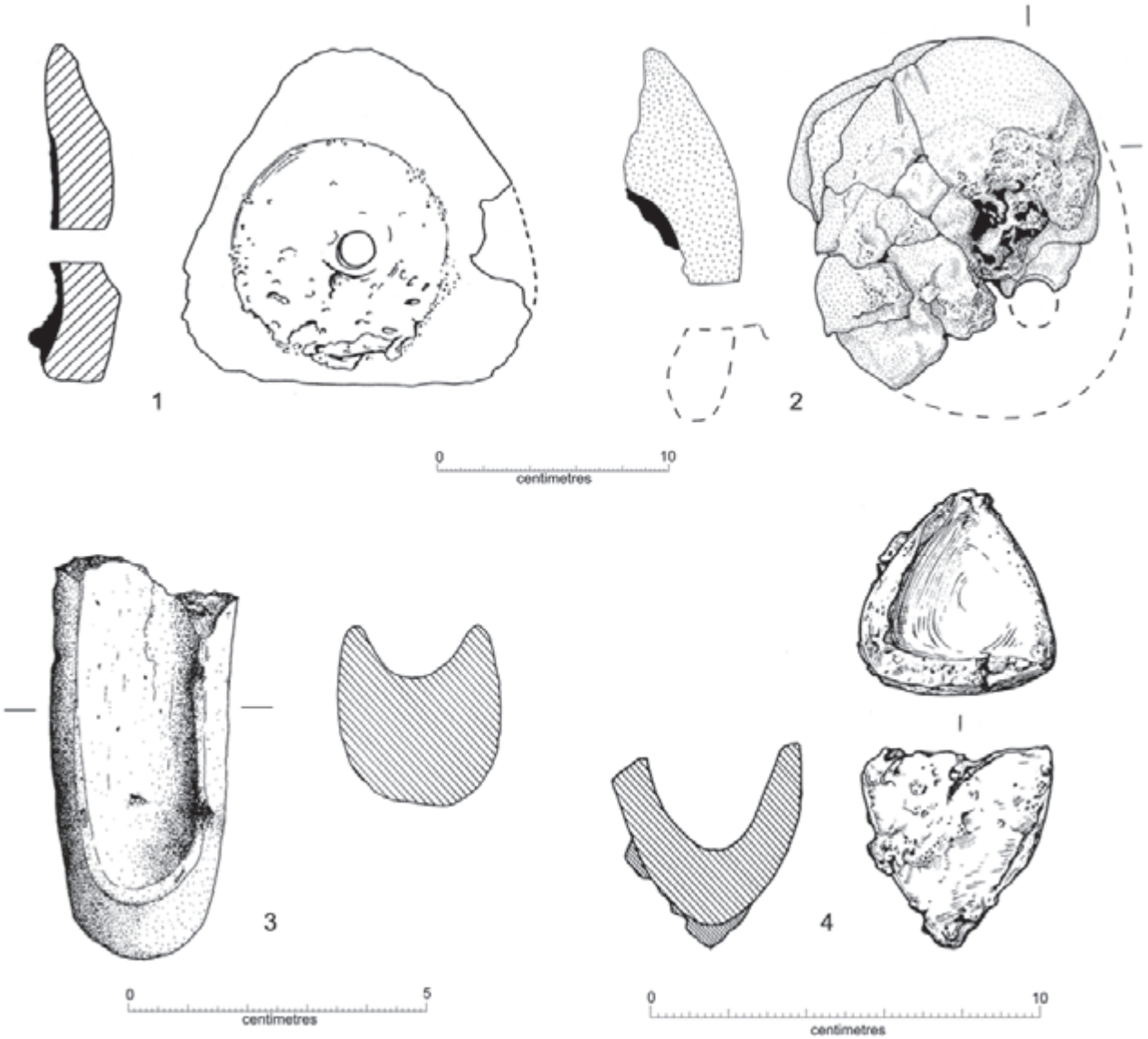


Figure 5.14. Crucibles, Moulds and Tuyères: 1 & 2) tuyères (76/FC 2562 & 89/FC 2565); 3) mould (32/FC 2595; 237N × 167E); 4) crucible (001/FC 2590; 301N × -53E).

Table 5.10. Number of crucibles and moulds in which different elements were detected.

	Crucibles (Σ=19)	**Moulds** (Σ=33)
Copper	14 (74%)	23 (70%)
Zinc	15 (79%)	25 (76%)
Tin	7 (37%)	4 (12%)
Lead	7 (37%)	7 (21%)

moulds in which each element was detected through the EDXRF analyses. Copper and zinc are detected in roughly equal proportions in the crucibles and moulds whereas tin and lead are found less frequently in the moulds. Copper is the principal ingredient of these alloys (usually >80%) and so is regularly detected. Zinc is both extremely volatile and easily oxidised and so is also found in most crucibles and moulds. Tin is detected in only a small number of cases (particularly in the moulds) suggesting that reducing conditions were usually maintained. The low incidence of lead (particularly in the moulds) is surprising as this element is much more volatile than tin or copper. The low incidence of lead may be due to the fact that it was not an important addition to the alloys (this may be especially true for Iron Age alloys; see Dungworth 1996, fig. 5).

The interpretation of EDXRF spectra obtained from moulds and crucibles may be further complicated by a range of other problems: alloy composition, re-use of moulds and crucibles, the presence of naturally occurring metallic elements in clays and temper,

Figure 5.15. MPX Distributions: hearth-slag pieces; smithing and tap slags.

Table 5.11. Crucible fragments.

Cat. No.	HH	North	East	FC	Date	EDXRF	Fabric	Inclusions	Vitrification	Features and location
1		301	-53		IA?	Zn	Black	Quartz + Opaque	Slight	Post pit (RH13), ABC Enclosures
2	19	1835	845	2593	IA	Cu, Zn, Sn, Pb	Dark grey	Charcoal + Quartz	Yes	Pit, North Enclosure (RH110)
3	17	1835	845	2594	IA?	Cu, Zn, Sn, Pb	Dark grey	Charcoal + Quartz	Yes	Pit, North Enclosure (RH110)
4		2047	673		IA	Cu, Sn, Pb	Pale grey	Quartz	Very	Ditch terminal, Roundhouse
5	14	2085	680		IA	Cu, Zn, Sn, Pb	Pale grey	Quartz	Very	Vicinity of Roundhouse (RH104)
6	16	2108	689		IA?	Cu, Zn	Mauve	Quartz	Very	Vicinity of Roundhouse (RH104)
7	10	2085	680		IA	Cu, Zn	Grey brown	Quartz + Opaque	Very	Vicinity of Roundhouse (RH104/105)
8		1444	623	2592	IA?	Cu, Sn	Grey	Quartz + Charcoal	Very	Pit, RB Cemetery III
9	18	2085	680		IA	Cu, Sn	Pale grey	Quartz	Yes	Vicinity of Roundhouse (RH104)
10	13	2079	650		IA	Cu, Zn, Pb	Grey	Quartz + Opaque	No	Vicinity of Roundhouse (RH104)
11	11	2085	680		IA	Zn	Grey	Quartz + Opaque	No	Vicinity of Roundhouse(RH104)
12	20	2105	672		IA?	Cu, Zn, Sn	Grey	Quartz	Slight	Vicinity of Roundhouse (RH104)
13		380	100	2603	IA?	Zn	Brown	Quartz	No	Pit RB Enclosure III
17		335	25		?	Zn	Light grey	Quartz	Slight	Ditch
18		1378	312		?	Cu, Zn	Light grey	Charcoal + Quartz	Slight	Ditch, Roundhouse (RH79)
19		186.5	206		?	Zn	Light grey	Quartz	Slight	Pit, RB 1/South Rings

and corrosion effects. The enrichment or depletion of particular alloy elements in a crucible or mould can only occur if that element is actually present in the original alloy. The absence of a particular element in a mould or crucible may be due to the particular thermochemical conditions or simply because that element was not present in the alloy. Crucibles were re-used (Bayley 1992, 755) and a range of different alloys could be melted in the same crucible. Analysis by EDXRF will not be able to distinguish between repeated use of a crucible to melt a gunmetal and use of a crucible to melt first brass and then bronze. Analysis by EDXRF will not be able to distinguish between metallic elements naturally within a crucible fabric and those that have been introduced by melting or casting, except where the metallic elements are relatively abundant. During long periods of burial metal tends to corrode and some elements may be depleted or enriched at the surface.

Crucibles

Nineteen crucibles or possible crucibles were identified from Mucking (Fig. 5.11). Most of these were highly fragmentary and in some case could only be identified by the distinctive vitrification seen on some of the more complete examples and the results of EDXRF analysis. As discussed above, the archaeological material from Mucking has been dated by a combination of context and typology. Most of the crucibles could be dated to the Iron Age and only three were dated to the Anglo-Saxon period and are not discussed further here. All of the crucibles are listed in Table 5.11 with their provenance, reference numbers and other information. Each crucible was analysed using EDXRF and the characteristic peaks present were noted. The height of each peak is proportional to the amount of that element present but the heights of peaks of different elements are not strictly comparable because of the varying fluorescent yields of the different elements. Thus the order in which the elements that were detected are listed in Table 5.11 has no significance. The more interesting and complete crucibles are described below in more detail.

1) Iron Age (area RH104) – Joining fragments comprising a large part of a triangular crucible with a pouring lip at each corner (Fig. 5.14.1). The side is about 50mm long and the crucible

Table 5.12. Mould fragments.

Catalogue	HH	North	East	FC	Type	Date	Found	XRF	Feature and location
26		2077	651		mould	IA	yes	Cu, Zn	Round house (2075Nx675E; RH104)
27		2085	680		mould	IA	yes	Cu, Sn, Pb	"
28		2057	652		mould	IA	yes	Cu, Zn, Sn, Pb	"
29	23	2085	680		mould	IA	yes	Cu	"
30	22	2077	651		mould	IA	yes	Cu, Zn, Pb	"
31		2057	652		mould?	IA	yes	Cu, Zn	"
32		236.5	167	2595	mould	IA?	yes	Cu, Pb, Ag, Au	Pit, RBI/South Rings (area of RHs 6–8)
33	21	2080	668		mould	IA?	yes	Cu, Zn, Sn, Pb	Round house (2075Nx675E; RH104)
34		1000	–50		mould	IA?	yes	Cu, Zn, Sn	Enclosure ditch?
35		940	208		mould	IA?	yes	Cu, Zn	Pit complex, 'Banjo' Belgic area
36		1807	871		mould?	IA?	yes	Cu, Zn	North enclosure
37		125	133		mould?	RB?	yes	Zn, As	Ditch, cutting South Rings
44		1493	765	2619	mould?	?	yes	Zn	Pit (isolated)
45		1446	715	2616	mould?	?	yes	Cu, Zn, As	Post hole
46		353	147	2601	mould	?	yes	An	Pit?
48		950	~150		mould	?	yes	Cu, Zn	???
49		220	165		mould?	?	yes	Cu, Zn	??? (N. butt end of South Ring's inner circuit, western entrance)
50		1378	312		mould?	?	yes	Cu, Zn	Ditch?
51		1493	765	2618	mould?	?	yes	Zn	Pit (isolated)
52		1020	178		mould?	?	yes	Zn	Pit (isolated)
53	24	1055	268	2608	mould?	?	yes	None	Ditch
54		988	296		mould?	?	yes	Cu	Pit (isolated)
55		353	280	2601	mould?	?	yes	Zn, Sn	Pit

is about 50mm high. The walls are thickest at the base and thinnest at the rim with thickness of up to 12mm. The fabric is black with fine quartz and grog inclusions; the outer surface and the rim show some vitrification. The crucible is dated to the Iron Age on the basis of its shape rather than the date of its context.

2) Iron Age – Rim fragment from a triangular crucible that includes a corner. Not enough survives to reconstruct the full length of a side of the depth of the crucible. The walls are thickest towards the base (up to 8mm at lowest surviving point). The fabric is dark grey with varied inclusions. These comprise charcoal (up to 1mm across), moderately fine quartz and a little angular flint. There is some vesicularity, especially towards the surfaces that also show some vitrification. The surface is varied in colour from grey to green, red and cream. Very similar to, and found near to 3, but not a joining fragment.

3) Iron Age – Rim fragment from a triangular crucible that includes a corner. Not enough survives to reconstruct the full length of a side of the depth of the crucible. The walls are thickest towards the base (up to 7mm at the lowest surviving point). The fabric is dark grey with varied inclusions comprised of charcoal (up to 1mm across), moderately fine quartz and a little angular flint. There is some vesicularity, especially towards the surfaces that also show some vitrification. The surface is varied in colour from grey to green, red and cream. Very similar to, and found near to 2, but not a joining fragment. Dated to the Iron Age on the basis of the shape of the crucible rather than the date of its context.

Moulds

Thirty-six ceramic moulds or possible moulds were identified with varying degrees of confidence (Fig. 5.11). The moulds came from late Bronze Age through to Anglo-Saxon contexts although in many cases the contexts could not be dated. Only one mould fragment (no. 37) came from a Roman context. As no crucible fragments were found in Roman contexts it is likely that the mould fragments are residual. Moulds from Iron Age contexts are listed in Table 5.12 with their provenance, reference numbers and other information. Each mould was analysed using

Table 5.13. Tuyère fragments (Type: A = Plate, B = Triangular, C = Block, D = Disc and lump).

Cat. No.	North	East	FC		Type	Date	Located	XRF
56	2047	673		Tuyère	A	IA	no	
57	954	172	2564	Tuyère	A	IA?	yes	
58	2078	637		Tuyère	A	IA?	no	
59	2105	672		Tuyère	A	IA?	no	
60	-228	342		Tuyère	A	RB?	yes	
61	178	145	2558	Tuyère	A	RB?	yes	Cu
62	192	92.3	3664	Tuyère	A	RB?	yes	
71	930	230	2563	Tuyère	A	?	yes	
72	1047	633		Tuyère	A	?	no	
73	1048	632		Tuyère	A	?	no	
74	1053	625		Tuyère	A	?	no	
75	1808	972		Tuyère	A	?	yes	
76	754	325.6		Tuyère	B	?	no	
77	695	386	2560	Tuyère	C	?	yes	
78	1000	-50		Tuyère	C	IA?	yes	
79	1374	304	2572	Tuyère	C	IA?	yes	
80	1418	310	2573	Tuyère	C	IA?	yes	
81	2105	672		Tuyère	C	IA?	no	
82	644	154		Tuyère	C?	?	yes	
83	2099	647		Tuyère	C?	IA?	yes	
84	2104	667		Tuyère	C?	IA?	yes	
85	360	130		Tuyère	C?	RB?	yes	
86	1056	190	2570	Tuyère	C/D	?	yes	
87	850	167	2632	Tuyère	C/D	IA?	yes	
89	904	219		Tuyère	D	IA?	yes	
91	906	219		Tuyère	D?	IA?	yes	
92	940	208		Hearth lining?		?	yes	
93	1024	455		Hearth lining?		?	yes	
95	2106	676		Hearth lining		IA?	yes?	Cu, Sn

EDXRF and the characteristic peaks were noted. The height of each peak is proportional to the amount of that element present but the heights of peaks of different elements are not strictly comparable because of the varying fluorescent yields of the different elements. Thus the order in which the elements that were detected are listed in Table 5.12 has no significance. The more interesting and complete moulds are described below in more detail.

Most of the moulds were made from fine clays with fine quartz inclusions. Almost all had reduced fired inner surfaces and oxidised fired outer surfaces. In a few cases the inner faces of the moulds survived but these were rarely complete enough to allow the reconstruction of the shape of object being cast. In one or two cases it can be seen that the mould is either a two-piece mould or an investment mould; in most cases, however, the mould fragments are too small to allow their type to be determined. In a few cases the only indication that the moulds were indeed moulds was the detection of metallic elements by EDXRF.

27) Iron Age – Fragment of a mould that is too small to allow the reconstruction of the shape of the object being cast. One flat-topped knob, about 7mm high stands up from the inner surface and rough patches suggest other similar protuberances have been broken off. The knobs may have produced an openwork effect for a plaque or some such object. The fabric is black (reduced) on inner surfaces and buff to orange (oxidised) on outer surfaces and contains quartz inclusions. The fragment is possibly from a piece mould although this would be most unusual for the Iron Age.

32) Iron Age? – Incomplete clay ingot mould with 'U'-shaped section (Fig. 5.14.3). The fabric is fired to a uniform dark grey colour (reduced) except on the base, which has a thin orange (oxidised) zone. It would have been used to produce a bar ingot of metal that could then have been smithed to shape or remelted and cast in another mould. Microscopic examination detected some very tiny (about 0.1mm) metal droplets attached to the surface just below the rim on the inside. Surviving length 65mm.
EDXRF analysis detected silver and gold together with copper, lead and zinc, suggesting precious metal ingots had been made (although it may have been used to produce base metal ingots as well). The firm attachment of the droplets to the ceramic suggests that they are trapped in a thin vitrified surface layer. This is most likely to have occurred if metal had been melted directly in the mould (*e.g.* by heating filings or scrapings with a blowpipe) rather than if molten metal had been poured in from a crucible. Similar objects have been recorded from an Iron Age site at Thetford (Gregory 1991, 141; Wilthew *et al.* 1991, 142)

33) Iron Age? – Fragment from a mould that was used to produce a fairly complex object as the moulding surfaces curve in two different planes.

The fabric is dark grey (reduced) on the inner surfaces and orange to buff (oxidised) on the outer surfaces and contains abundant quartz inclusions. The complex shape of the mould makes it likely that it was an investment mould.

34) Iron Age? – Fragment of a mould too small to allow reconstruction of the shape of the object cast. Two concentric curving impressions can be discerned. The fabric is black (reduced) on the inner surfaces and orange to buff (oxidised) on the outer surfaces and contains quartz inclusions.

36) Iron Age? – Two fragments of a possible mould with no surviving moulding surfaces. The fabric is black (reduced) to red-orange (oxidised) in colour and contains abundant quartz and opaque mineral inclusions.

Tuyères

Thirty-seven tuyères or fragments were identified (Fig. 5.11) of which 26 are further discussed here, three recovered from Roman contexts and 11 from undated features. Tuyères served to protect the bellows and bellows nozzles from the heat of a hearth or furnace (Tylecote 1986, 141–2). Most of the tuyères from Mucking consist of plates or blocks of clay with holes for the bellows nozzle. Most of the tuyères are likely to have been used in working iron (possibly smelting and smithing), but some may have been used to melt copper-based alloys. EDXRF analysis showed that a few contained small amounts of non-ferrous metals. In some cases the actual tuyères could not be located and classification is based on archive illustrations.

The plate tuyères are the most common and consist of a sub-rectangular or circular plate of clay, typically 80–120mm across and 10–20mm thick. One of the surfaces is usually heavily vitrified and on occasion these show signs of extreme softening and even failure. The other surfaces consist of oxidised (red-orange) ceramic. It is assumed that the vitrified surface faced the hearth/furnace while the oxidised ceramic surface faced the bellows. The original thickness may have been considerably greater as these pieces of hearth furniture were probably not deliberately fired prior to use and the poorly fired outer surfaces have been lost. In addition, the vitrification of the inner surfaces may have resulted in the loss of some of the original ceramic. The perforations in the tuyères are circular and have an average diameter of 20mm (±4.8mm). Accurate measurement of perforation diameter is occasionally hampered by the vitrification of the clay. In some cases the way in which the vitrified clay around the perforation has slumped suggests that the bellows nozzle was directed downwards at an angle rather than being horizontal. Plate tuyères at Mucking were found in Iron Age through to Anglo-Saxon contexts and (assuming that all the later ones are not residual) do not appear to be associated with any particular period. Some of the tuyères were found in the vicinity of the Iron Age roundhouse (2075N × 675E; RH104) and may be associated with the bronze casting there. However, none of those from this area contained detectable levels of non-ferrous metals. In addition there were no observable differences between these tuyères and those of the same type found elsewhere at Mucking.

A single triangular tuyère was found during excavations at Mucking. The tuyère itself could not be located, although an illustration was found in the archive. The illustration shows a relatively large tuyère, which is triangular in shape, although the corners are rounded (Fig. 5.14.1). The tuyère is approximately 150mm high, 30mm thick at its base and narrows towards the top. A perforation 16mm in diameter is situated 60mm above the base. One face of the tuyère has a zone of vitrification 100mm in diameter around the perforation. This side would have been placed to face the hearth or furnace. The fact that the vitrification is restricted to part of the face suggests that the tuyère was placed against the outside of an opening in the hearth or furnace and luted into place rather than built as part of the structure. The tuyère is reminiscent of loom weights but can easily be distinguished by the small size of the perforation, the narrowing towards the top and the zone of vitrification (cf. Brinch Madsen 1981, 96–7).

The remaining tuyères are formed from large pieces of clay. The first type consists of a block, generally thinner towards the top and with rounded corners. The second type is formed in two pieces: a disc of clay is partially supported by a separate lump of clay (disc and lump). These two types of tuyères were often difficult to distinguish when only small fragments survived.

The block tuyères are known from Iron Age sites in Britain (Spratling 1979, 129) and Europe (Jacobi 1974, 246, 255, 347–8, pl. 99). Block tuyères are well known in the Scandinavian world in the Early Medieval period. These are made from clay (from Helgo, Brinch Madsen 1981, 87–8, see also Coppergate, York, Bayley 1992, 789) or stone (Thalin-Bergman 1979, figs. 2 and 5; some of the stone tuyères are even decorated, *e.g.* Roesdahl 1982, 108, pl. 21). None of the blocks from Mucking are complete and it is difficult to reconstruct their overall dimensions. Assuming that the hole for the bellows is located centrally on the largest fragment (no 78) then the block tuyère would be 130mm wide, 150mm high and 70mm thick.

There are no direct parallels for the disc and lump tuyère from Mucking. The perforated disc seems to have been formed and dried (both parts were fired by the heat of the hearth or furnace), and then offered up to the outside of the hearth or furnace structure and wedged into position with the supporting lump. The fabric for the disc and lump tuyères are generally more sandy than other types.

The high degree of vitrification seen on all of the material examined indicates that it was used for high temperature processes. The provision of a hole allowed the introduction of air and confirms that these objects are tuyères. It has not been possible to find any clear associations between tuyère form and date or find spot. This leaves open the question of precisely what function the tuyères served. They could have been used for smelting or smithing and for working copper or iron. There is abundant evidence for iron smelting, iron smithing and copper alloy casting at Mucking and each would have required the use of tuyères. Jacobi (1974, 255) identifies the block tuyères from Manching as related to the working of copper alloys (rather than iron). Very few of the tuyères from Mucking (and none of the block type) have detectable levels of non-ferrous metals associated with them. In addition, the find spots of the tuyères and the crucibles and moulds rarely coincide.

The Iron Age evidence consists of 13 crucibles, 11 moulds and 13 tuyères, of which nine crucibles, seven moulds and six tuyères come from the immediate vicinity of a roundhouse (No. ???). The concentration of moulds and crucibles from this area suggests that there was at the least one period of fairly intensive copper alloy casting in this area. The tuyères may not be associated with the copper casting, however, as they are also associated with ironworking slag (McDonnell

Table 5.14. Comparative summary of refactory fabrics in use (for a full description see the section on Bronze Age refractory evidence).

Fabric	Artefact	Period	Description
1	crucible	Bronze Age	sand
2	"	Iron Age	sand
3	"	Iron Age	sand and carbon
4	mould	Bronze Age	fine sand, abundant mica and detritals*
5	"	Bronze Age	as Fabric 4, but coarser sand; mica and detritals rarer
6	*cire perdue* mould	Iron Age	as Fabric 2 with higher clay fraction
7	tuyère	Bronze Age/ Early Iron Age	similar to Fabric 1

Table 5.15. Concordance of Iron Age and probable Iron Age refractory sherds (not sectioned; date derived from AML report; Dungworth & Bayley 1999).*

Sample	AML No.	Context	Date of feature	Identification
–	1	Post pit 301N × –53E	IA?	Crucible (Jones 1977, fig. 2)
MU10	7	Ditch 2085N × 680E	IA	Crucible
MU11	11	Ditch 2085N × 680E	"	?Refractory
MU13*	10	PH 2079N × 650E	"	?Refractory
MU14	5	Ditch 2085N × 680E	"	Crucible
MU15	76	Pit 754N × 325E	?	Tuyère
MU16	6	Pit 2108N × 689E	IA	Crucible
MU17	3	Pit 1835N × 845E	"	Crucible
MU18	9	Ditch 2105N × 672E	"	Crucible
MU19	2	Pit 1835N × 845E	"	Crucible
MU20	12	Ditch 2080N × 668E	IA?	Crucible
MU21	33	Pit 2080N × 668E	"	Mould, ring
MU22	30	Gully 2077N × 651E	IA	Mould, ring
MU23	29	Ditch 2085N × 680E	"	Mould, ?ingate
MU24	53	Ditch 1055N × 268E	?	Mould

1993, 32, table 3). The other crucibles and moulds are scattered widely across the site. The other tuyères are also scattered, although three come from the area around 900N × 200E and may be associated with some of the ironworking slag concentrations there (McDonnell 1993, 32, table 3).

Bronze Casting: Refractory Evidence[6] (Hilary Howard)

The ceramic refractories from Iron Age contexts were examined for comparison with the Bronze Age debris (Fig. 5.11). Included were numerous crucible fragments and several remnants of ring-mould, similar to others found at other sites including Gussage All Saints, Dorset (Foster 1980); Grimsby, Humberside; South Cadbury, Somerset; and Beckford (Howard 1983). Although the analysis of Iron Age 'sherds' is not described in detail here, a fabric summary is provided in Table 5.14 and a list of sectioned pieces included in concordance Table 5.15. Grain-size characteristics and representative grain-size data are presented in Table 5.16.

During the Iron Age different refractory formulae were in use; *cire perdue* ring moulds and triangular crucibles were formed of sand bound with varying proportions (to 25% for sand crucibles and 40% for moulds) or non-micaceous clay. A second crucible formula, wherein a portion of silica was replaced by carbonaceous material, attests to the currency of two distinct Iron Age smithing traditions at Mucking. The chronological or spatial implications of these traditions are, however, unknown.

Some 39 complete and fragmentary clay tuyères have also been identified in various Iron Age contexts and are tabulated in the analysis of refractory evidence by Dungworth and Bayley (see above, Table 5.11; AML report 72/1999). Sample MU15 (AML cat. no. 76) was taken from the best tuyère on the site (Fig. 5.14.1; see also Jones & Howard, Chap. 3). Comparison with the only other large tuyère mouth from a British prehistoric context, from Glastonbury Lake Village, indicates a different manufacturing tradition and which may perhaps be chronologically defined. Furthermore, it is clear from the AML analysis that the tuyères were more likely to have been used for the working and processing of iron rather than copper, although this possibility cannot be entirely ruled out. Nor can the distinct possibility that, if they were used in copper smithing, several of the undated examples are in fact of Late Bronze Age date.

Quernstones

Aside from the saddle querns discussed in Chapter Three (see Buckley & Major, above; Fig. 3.2), some 270 fragments of rotary quern were recovered, which are generally reported upon by Buckley and Major in the Roman volume. In reviewing the evidence for the date of introduction of the beehive rotary quern in Britain

Table 5.16. Grain-size statistics.

Object	Slide	I GE MAT	No. of Grains	PH1 -1 to -.5	PH1 -.5 to 0	PH1 0 to .5	PH1 .5 to 1	PH1 1 to 1.5	PH1 1.5 to 2	PH1 2 to 2.5	PH1 2.5 to 3	PH1 3 to 3.5	PH1 3.5 to 4	PH1 4 to 4.5	PH1 4.5 to 5	PH1 5 to 5.5	Mean grain size	Std. dev.
Tuyère	15	43	24	0	0	0	1	5	5	6	12	12	12	15	15	17	.1069	1.89
slides			1															
grains			84															
Mould	21	69	101	0	0	0	0	2	9	21	20	17	5	2	8	17	.1335	2.14
	22	63	102	0	0	0	0	6	7	15	19	10	15	5	13	12	.1325	2.3
slides			2															
grains			203															
Crucible	10	66	98	0	0	1	4	4	3	2	6	13	7	8	20	21	.1026	2.69
	18	67	100	0	0	0	0	6	15	19	10	14	10	4	8	14	.1482	2.81
	19	59	97	0	0	0	0	3	10	18	11	6	6	8	11	26	.1157	1.99
	20	75	100	0	0	0	1	1	7	15	17	8	8	4	10	20	.1185	1.92
slides			4															
grains			395															

in that volume, thay relate that Heslop (2008, 19–20) concluded that there was now evidence for beehive querns becoming common on sites in Yorkshire and further north by the fourth century BC, while a fifth-century date is not inconceivable. There is nothing to indicate a date any earlier for the introduction of the rotary quern in southern England. Greensand rotary querns were being used widely in Southern Britain by the Middle/Late Iron Age. Although not common elsewhere in Essex, there were four fragments from Mucking's prehistoric contexts, while the three found in Roman/Anglo-Saxon contexts could also be of this date. They are likely to derive from the Folkestone Beds or other sources in the Wealden area. The three rotary querns of sandstone and that of sarsen coming from Early and Middle Iron Age contexts are further additions to the very small number of Iron Age rotary querns (then) recorded from Essex.

Otherwise, if lava, Millstone Grit and Puddingstone querns are excluded on the grounds that they are likely to have been of later date, then from the site's main Iron Age enclosures there would 18 possible Iron Age quernstones from RBI, five from the North Enclosure (four positively identified as being Iron Age) and only one such from the area of Belgic Banjo (with none apparently from the ABC Enclosures).

Loomweights and Spindlewhorls **Paul Barford**

Triangular weights of fired clay, believed to have been from warp-weighted looms, are relatively common finds in southeastern Britain on sites from the Early Iron Age through to the end of the period. A minimum of 856 triangular loomweight fragments were recovered from across the site (Fig. 5.16), weighing 125kg, with 93% comprised of Fabric B material (see Chap. 3). These varied in weight between 15 and 3000g; their surviving sides measured 15–220mm, the thickness was between 19mm and 120mm and they had heights between 15mm and 215mm. Twenty loomweights are of 'mega' type (215–3000g), with side lengths of up to 220mm and heights of 195mm. The number of perforations present ranged between one and five, with an average diameter of *c.* 12mm (max. 25mm). Only two loomweights were complete (Fig. 5.18.1–2), with 40 fragments preserving 50% or more of the complete object. Four fragments came from a single pit (1089N × 229E; Fig. 5.17), each weighing over 2000g and being 70 to 100% complete. One example has possible rope impressions, there are finger grooves/impressions on two and one has seed impressions.

The majority of fragments were recovered from pits (*c.* 44% by both feature and number; see Table 5.17 for selected pits), with other features and enclosure ditches accounting for the remainder. It is clear, however, that there is a distinct bias towards

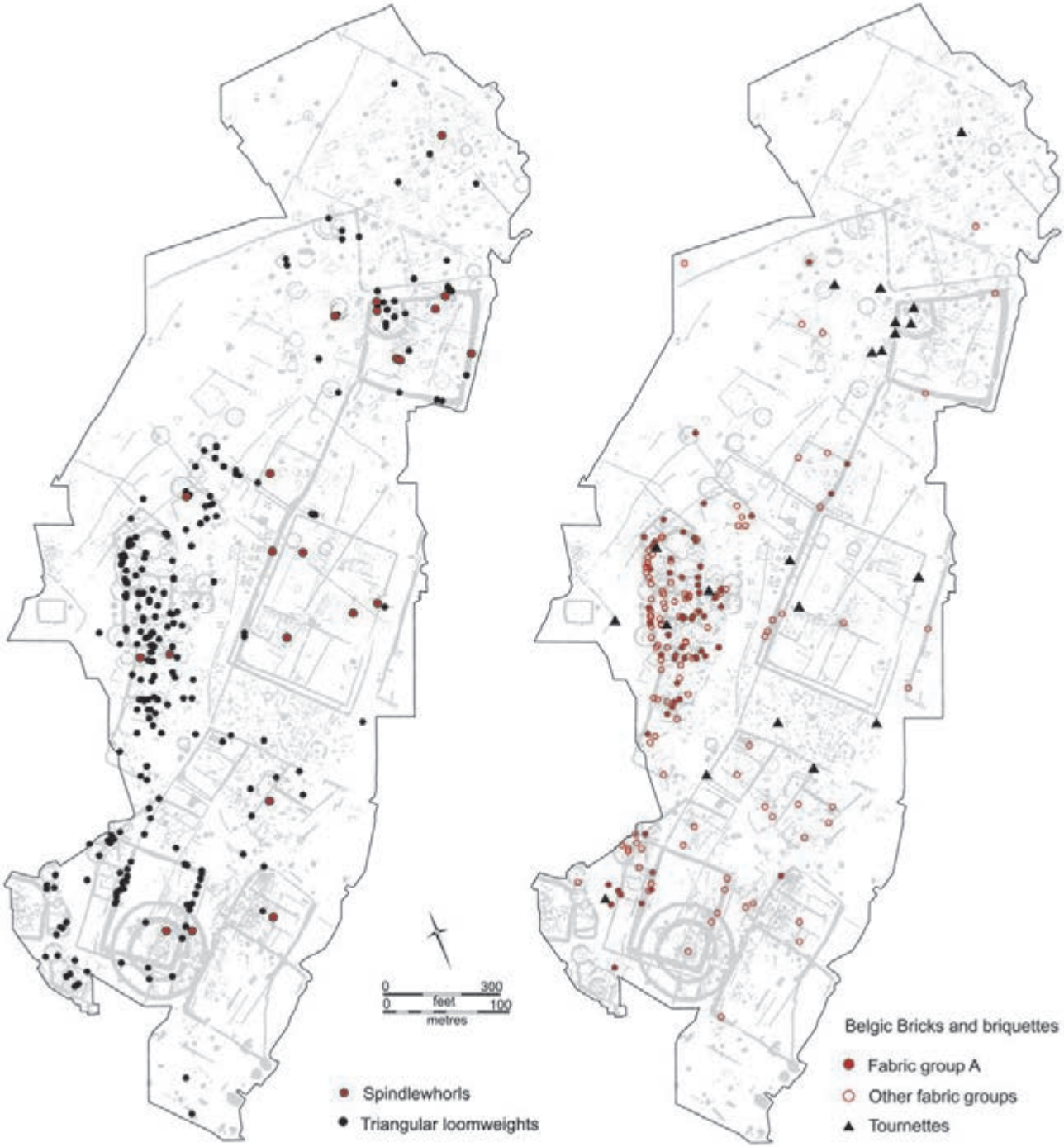


Figure 5.16. Distribution of spindlewhorls and loomweights (left) and, right, 'Belgic Bricks'/briquettes and tournettes.

Table 5.17. Selected pits with triangular loomweight deposits.

Cat. nos.	Co-ordinates		Weight (g)	Number	Completeness % (range)
	North	East			
127–139	-241	316	5835	54	10–50
103, 153, 191, 230	290	500	3340	16	10–40
140, 146–7, 331	1007	197	5715	15	20–90
119	1089	229	8000+	4	70–100
81, 86, 115	1123	243	3860	5	10–90
50, 65	1914	993	2585	40	10–60

the disposal of triangular loomweights, notably the larger fragments, within pits. The quantity of weights recovered from Mucking attests to the density and distribution of the Iron Age settlement (Fig. 5.16). Triangular loomweights are ubiquitous finds from Iron Age sites (see e.g. Major 1998 and 1999 for comparative Essex examples and distribution); a complete catalogue of the triangular loomweights is available in the digital archive.

Figure 5.17. Clay object pits: top, triangular loomweights (1089N × 229E); bottom, tournettes (?1086N × 514E).

Sixty-five fragments (5035g) were recovered from Iron Age roundhouse contexts (Table 5.18; one fragment, recovered from GH83 – within the Banjo-area – was surely residual); four of these had grooves on their corners to enable their suspension.

Twenty-three spindlewhorls, including eight complete examples, attributed to the Iron Age were recovered (Table 5.19); 13 being manufactured from a flint-gritted fabric, Fabric B. Dominated by cylindrical (seven) and cylindrical-trapezoidal (four) forms, the five globular forms may provide a typological link with the Late Bronze Age examples; two unphased globular examples were recovered from pits in the northern part of the site (SPW82 & 101), and SPW13 was a residual item recovered from a *Grubenhaus* in the vicinity of the South Rings. A trapezoidal spindlewhorl (SPW52) was found in the upper fill of RBI's enclosure ditch; SPW74 was also recovered from a pit containing a quantity of Middle Iron Age pottery, and SPW78 was recovered from the primary fill of the North Enclosure Ditch (it being manufactured from a sherd of grog-tempered pottery). Where recorded, the spindlewhorls had an average weight of 31.4g, mid-diameters of 35.5mm, and their perforations measured, on average, 6.6mm.

Other Fired Clay[7]

Table 5.20 provides summary data of the number of fragments of burnt clay/daub with wattle impressions by weight and feature. Predominantly deriving from pits (73% by total number), surprisingly little wattle-impressed daub was recovered from roundhouse gullies or other structures; there was a distinct lack of material from the Double Ditch Enclosure and the eastern central part of the site generally.

Of the structural daub, particularly noteworthy was the material recovered from one of the 'six-posters' (PS73, 1740N × 580E; Figs. 4.32 & 4.48), two of whose postholes contained *in situ* charred bases of squared timber overlain by burnt daub (see Jones, with Barford, Chap. 4). Transverse sill-plates/joists were inferred, with a fully-framed timber superstructure likely. Timber impressions on the daub show cleaved planks and that roundwood had been employed in the construction, with wattles

Table 5.18. Roundhouse loomweights.

Roundhouse	1	20	24	25	27	51	64	69	82	88	101
No.	39	3	7	2	1	1	2	1	4	1	4
Wt. (g)	1520	90	340	430	135	140	525	70	525	450	810

Table 5.19. Iron Age spindlewhorls (complete).*

Cat. no.	Co-ordinates		Feature	Type	Wt. (g)	Mid diam. (mm)	Perforation diam. (mm)
	North	East					
SPW13	500	*200*	Residual in *Grubenhaus*	Globular*	53	43	7
SPW25	280	530	Clearing	Trapezoidal*	-	37	6
SPW26	1232	528	Double Ditch Enclosure	Globular*	-	45	12
SPW41	1900	978	North Enclosure	Globular*	56	47	12
SPW46	1068	737	Pit	Fragment	-	-	-
SPW49	241	316	Pit	Trapezoidal	-	-	-
SPW52	240	250	RBI Ditch	Trapezoidal*	30	39	5
SPW66	580	520	Clearing	Fragment	-	39	-
SPW67	953	180	Ditch	Cylindrical	-	31	6
SPW68	961	260	Pit	Cylindrical	-	36	7
SPW69	1008	566	Pit	Cylindrical*	35	36	6
SPW70	1096	800	Clearing	Fragment	-	34	7
SPW71	1227	605	Pit	Cylindrical*	49	38	7
SPW73	1374	304	Ditch	Globular	-	32	9
SPW74	1437	520	Pit	Cylindrical*	33	31	5
SPW75	1731	862	Pit	Trapezoidal	-	39	7
SPW76	1735	852	Ditch	Globular	-	45	7
SPW77	1847	694	Posthole	Fragment	-	26	5
SPW78	1748	1044	North Enclosure	Sherd	-	46	5
SPW79	1860	800	Clearing	Trapezoidal*	35	38	8
SPW80	1863	951	Posthole	Fragment	-	35	8
SPW81	1884	801	North sub-enclosure	Fragment	-	-	7
SPW86	2323	970	Pit	Cylindrical*	14	27	6

Table 5.20. Summary data of burnt clay/daub with wattle impressions.

Fabric		Ditch	Other	RH	Posthole	Pit	Total
A	No.	14	3			24	41
	Weight	2480	90			2190	4760
B	No.	11	5	9	3	97	125
	Weight	1230	40	400	20	7520	9210
C	No.	3					3
	Weight	930					930
M	No.					11	11
	Weight					520	520
TOTAL (No.)		28	8	9	3	132	180
TOTAL (wt. g)		4640	130	400	20	10,230	15,420

woven horizontally between vertical staves before the daub was applied. That it was the staves that were vertical was shown by remnant magnetism analysis (A.J. Clark, Ancient Monuments Laboratory). The staves were fairly thin cleaved planks (radially split?) with tapering edges; some had rounded surfaces (*c.* 150mm) and 10–15mm diameter wattles, the majority with bark left on. Wattles were evidently fairly neatly woven around the staves, which seemed to have been quite closely spaced (*c.* 120–150mm); no wattles ran parallel to the staves. Corner fragments from daub panels also suggested, due to the absence of grooving, that the staves were morticed into wall-plates and sill-beams. The daub was 20–30mm thick and finished with either flat, smooth surfaces or more unevenly; a possible whitewash finish was identified on some pieces. A similar construction technique is inferred from the 'Rows' nine-poster (PS56, 1310N × 500E; Figs. 4.32–3).

During the initial post-excavation programme, a number of distinct fired clay objects (313 pieces) were assigned as either 'Belgic Bricks', 'briquettes' or 'blocks'. Forty-nine were identified as of the latter type, these being primarily recovered from the Banjo-

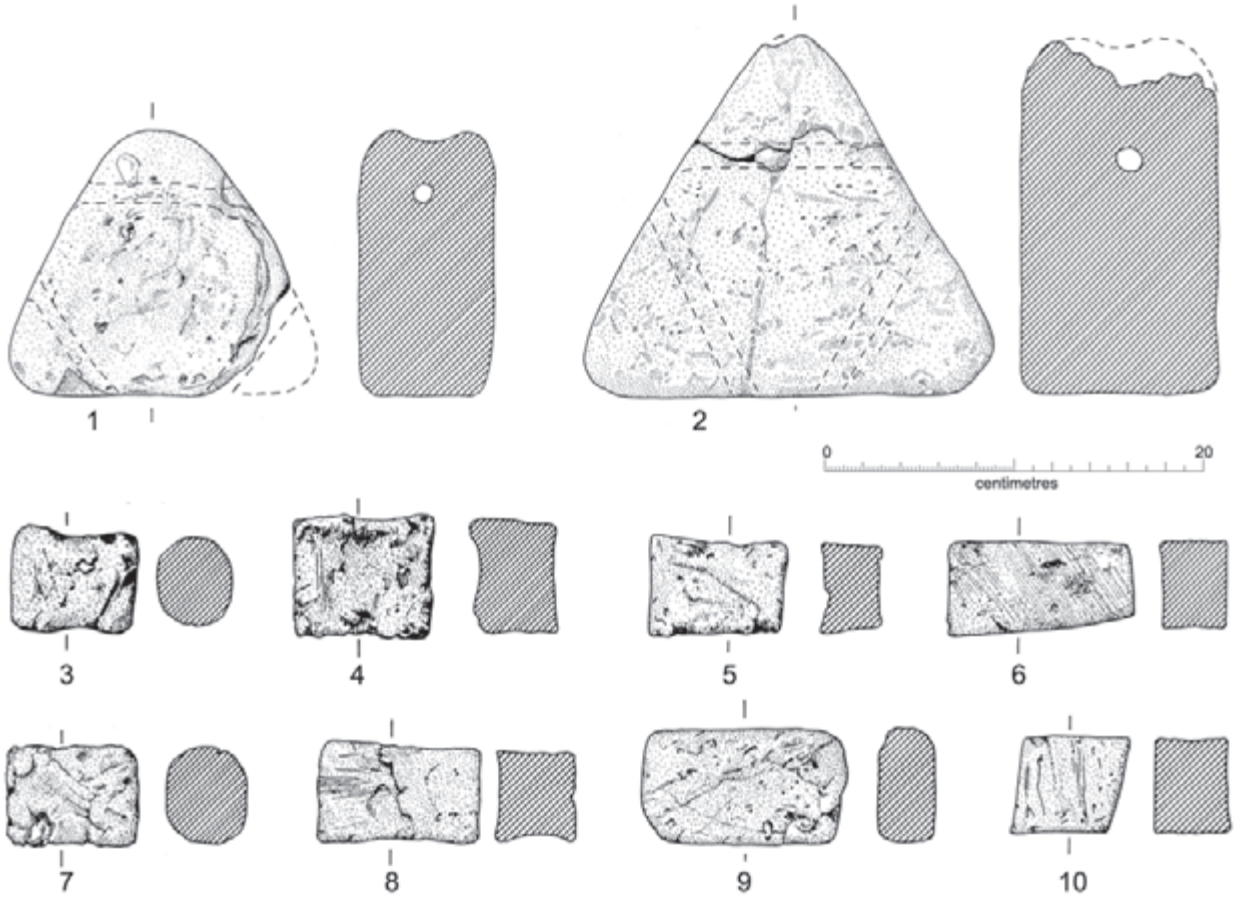


Figure 5.18. Fired Clay: 1 & 2) triangular loomweights (respectively, 2081 & 2099, 1326N × 638E & 1123N × 243E); 3-10) Belgic Bricks, briquettes and blocks (1976, 1366N × 380.26E; 1977, 1112N × 242.31E; 1982, 1122N × 239.30E; 1983, 1127N × 178.37E; 1978, 2120N × 750.38E; 1980, 1115N × 147.27E; 1979, 1324N × 380.8E; 1981, 1650N × 852.39E).

area's ditches and pits (Fig. 5.16). These are 55–140mm long, 40–85mm wide and 22–55mm thick, with a bias in the data towards the larger blocks having rounded corners, which in the smaller examples were angular (Fig. 5.18). Their weight varied between 45g and 690g. Thirty-one blocks were complete (all were over 80% complete), with 13 examples found in pits; one pit contained three complete blocks (1324N × 380E; Fig. 5.18.9). Eight blocks had distinct cut- or saw-marks on their surfaces, and had angular corners and reduced cores; these were 55–100mm long, 43–65mm wide and 35–45mm thick.

The 264 Belgic Brick fragments (32.3kg) were retrieved principally from the Banjo-area's ditches and pits. Across the site, 16 fragments were found associated with oven-type features (1040g); only six fragments were found in association with oven features in the Banjo-area (370g). The bricks were manufactured from either Fabric A (26%) or B (74%). Their firing resulted in differing degrees of hardness, with three fragments poorly fired and soft; 214 pieces fired to a medium hardness (27.4kg), and 47 fragments fired at higher temperatures (4400g), creating a much harder result. Classified into four groups – A (88 pieces, 9595g), B (45, 8910g), C (5, 1390g) and E (14, 2790g) – 112 fragments were unclassified (9575g).

First employed by Wheeler (Wheeler & Wheeler 1936, 178–80), the term 'Belgic Brick' was used to describe 'pre-Roman' bricks and it was suggested they were imitations of Roman forms; this interpretation has since been questioned, with their possible kiln-use suggested instead (Barford 1996). At Orsett 'Cock', however, no evidence of kiln-use or association between Belgic Bricks and kiln activity was found, but a number of pieces were discovered on an oven floor (Major 1998, 107). The distribution of Belgic Bricks and blocks from Mucking show that these are found across the site, but with a clustering in the Banjo-area (Fig. 5.16). The distinction between Belgic Bricks and briquettes is unclear and they have thus here been combined into a single artefact category.

Tournettes (Paul Barford)

The term 'tournette' was used by Margaret Jones to refer to a particular artefact class at Mucking.

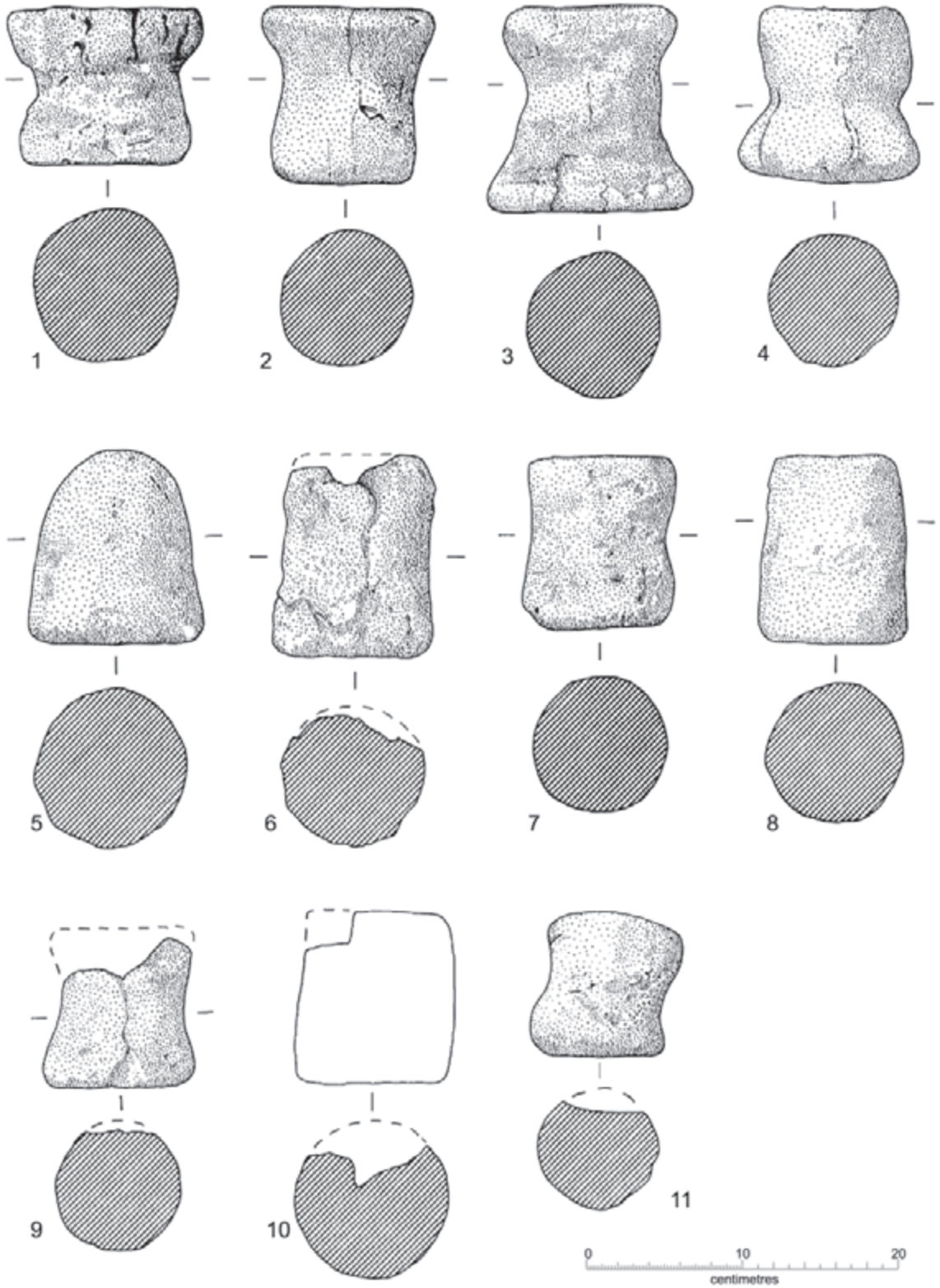


Figure 5.19. Tournettes: 1 & 2) 3154 and 3155 (1813N × 765E); 3 & 4) 3156 and 3162 (1752N × 723E); 5–7) 3157–9 (1086N × 513E); 8) 3161 (1867N × 813.5E); 9) 3160 (1825N × 808.1E); 10) 3163 (1917N × 727E); 11) 3164 (1243N × 143.3E).

The name is retained here as a typological classification and not used as a functional term. It is difficult to be certain that all the small fragments of cylindrical fired clay objects are genuinely of the same object-type, particularly at the south end of the site, but the similarity of the fabrics is suggestive.

The fabric of the complete and definite fragments is oxidised soft or medium-fired Fabric B, often a pale or buff colour. Most have some very fine vegetable

matter and sometimes a little very fine sand; their cores are invariably poorly fired. Some of the objects have small white (calcareous?) flecks in the fabric that is absent in other fabrics on the site.

There are two main forms, the cylindrical or the reel-shaped, which is by far the commonest on the site. Most of the objects have a flattened expanded base and a flat or slightly convex other end.

There were 35 items, with most of the definite objects from the centre of the site, where there were a number of groups of several complete or fragmentary tournettes (see Fig. 5.16 for distribution). There are several groups of individual tournettes which are worth mentioning in detail. There are a group of at least four tournettes – three complete – in pit 1086N × 514E (Fig. 5.17). One is cylindrical, the other two slightly more tapered with a convex top (Fig. 5.19.5–7).

Another pair come from a clay pit, 1752N × 723E (Fig. 5.19.3–4). Both are reel-shaped. One has a cylindrical top and the other may have stood on its broader end, but the zone of poorly fired clay at the other end indicates that the object stood on the thinner end when fired. This effect is, however, visible on the other object, demonstrating that this example did stand on its broad end (one was previously published in Jones 1975b, pl. x).

Another large group of fragments also came from a clay pit, 1813N × 765E, and consists of two complete fragments of another two tournettes. The complete examples are reel-shaped (Fig. 5.19.1–2). These are also shown by a zone of reduction to have stood the 'wrong way' up (either in firing or in refiring). The fragmentary tournettes in the same pit are softer fired and are more cylindrical, but the same size. Several fragments have white surfaces, and two have small white flecks in the fabric (calcareous?).

A large group of fragments from another clay pit, 1917N × 727E could be reconstructed as at least two cylindrical tournettes (Fig. 5.19.10). A complete example came from the pit at 1867N × 813E in the North sub-Enclosure (Fig. 5.19.8). Nearby was found a very small damaged example, which was very soft fired and buff-coloured. The only other example of this size (from a ditch at 1243N × 143E) was interesting as it had been dropped wet onto a flat surface, denting one side; nevertheless, it was hard fired (Fig. 5.19.11).

The dating of these items is apparently almost exclusively Iron Age and probably Early to Middle. Note that few definite examples occur beyond the boundaries of Iron Age occupation. The majority of these objects have also come from clay pits, especially the larger groups.

The function of these objects is uncertain. Where groups were found – as in pit 1086N × 514E and 1813N × 765E – while the shape varies, the heights remain similar. The fabrics differ in texture and hardness in the group from 1813N × 765E, but are the same in the other pit. It seems difficult to escape the conclusion that these objects were used in sets, given their fairly frequent occurrence in groups, but their use is uncertain. Whether or not the firing of those from the 1752N × 723E pit was done prior to or during their use cannot be determined. The objects show few other signs of use; their association with clay pits and possible potter's waste is suggestive.

It is tempting to see these objects as pedestals for use in kiln-like structures, but there is no clear evidence at Mucking to substantiate such a suggestion. The Nene Valley kilns with similar pedestals apparently used them singularly with radiating firebars; while other modes of use in a kiln may be suggested, the rounded tops of some items would not be particularly suited for this purpose. Neither does their apparent occurrence in groups fit with such an interpretation. It is possible that signs of pairing can be seen with groups, e.g. in pits 1086N × 514E and 1813N × 765E. That no areas of reduction appear on the top of the Mucking tournettes, however suggest the position of firebars. Having said that, the close resemblance to those of the Nene Valley kilns is suggestive.[8]

Comparanda

The name tournette was originally coined by Worsfold (1948) to describe two complete examples from Kent. Most examples are cylindrical or reel-shaped about 100mm in diameter and about 120–150mm high. The ends are either flat or slightly convex, but one at Great Wakering is concave. The Mucking and Shoebury examples seem to be Early to Middle Iron Age in date; the Borden, Dartford and Nazingbury examples come from 'Belgic' contexts (note the Lower Thames distribution):

Borden, Kent (Worsford 1948)
Dartford, Kent (I. Thompson pers.comm)
Great Wakering, Essex (S. Elsdon pers.comm)
Shoebury, Essex (Wymer & Brown 1995)
Nazeingbury, Essex (Huggins 1978, 98–101).

The Shoebury examples were found in an 'oven' or 'kiln' containing badly overfired Early–Middle Iron Age pottery, tending to support the idea that these objects were connected with pottery manufacture.

The question of whether or not the 'tournettes' really were Early/Middle Iron Age kiln furniture must at this stage remain uncertain, but if they were, it appears they were not used with firebars. They could have been used as supports in clamp kilns. The Shoebury structure may suggest, however, that they were used as spacers or low pedestals in more complex structures. If this is so, it may be that in the Lower Thames kiln technology was in part an indigenous development, rather than a total innovation from the Continent as Swan suggests (1984, 56–7). It is also possible that kilns may predate the inception of wheel-thrown Late Iron Age pottery with which the beginning of kiln technology is generally linked (Swan 1984, 56–7; Thompson 1982).

It is likely that there may be some connection between these objects and Early/Middle Iron Age pottery manufacture. If they are not to be seen as potential kiln furniture, then the 'tournette' interpretation of these objects (Jones 1975b) is possible, but does not readily explain the pairing of these complete examples nor the conditions of firing noted at Mucking.

Economic and Environmental Data

The period's economic data is, unfortunately, extremely sparse. There is no indication that any of its plant remains were systematically analysed and its animal bone is obviously incomplete. Of the latter, while some was identified by Done – and it appears that this was true of all of the North Enclosure's material – its coverage otherwise seems partial. The remains from the Belgic Banjo must represent only a fraction of its assemblage and almost nothing, for example, is attributed to the ABC Enclosures.[9] Against this, Greig's pollen study from the North Enclosure's

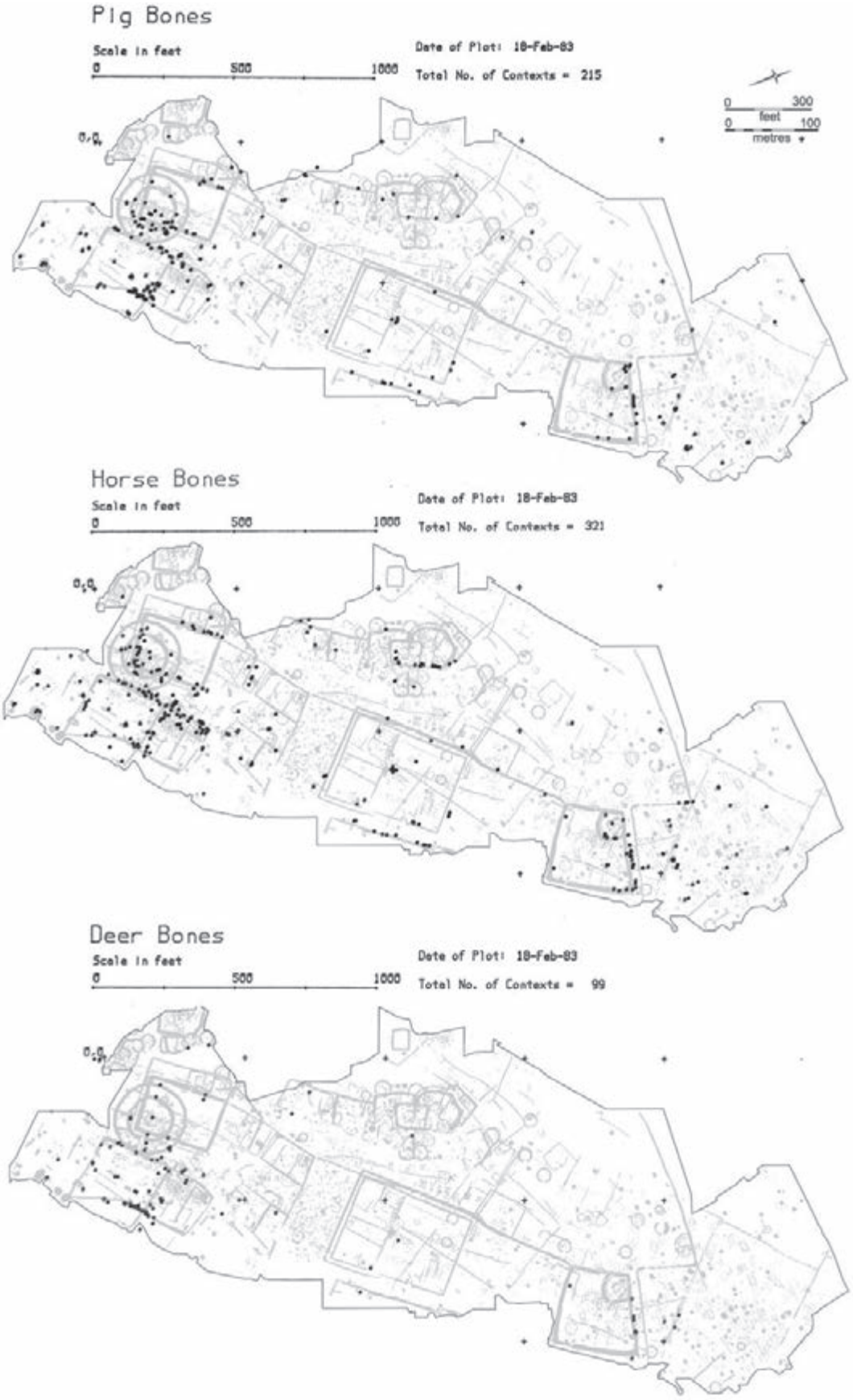


Figure 5.20. MPX Distributions – Animal Bones (I): Horse, pig and deer.

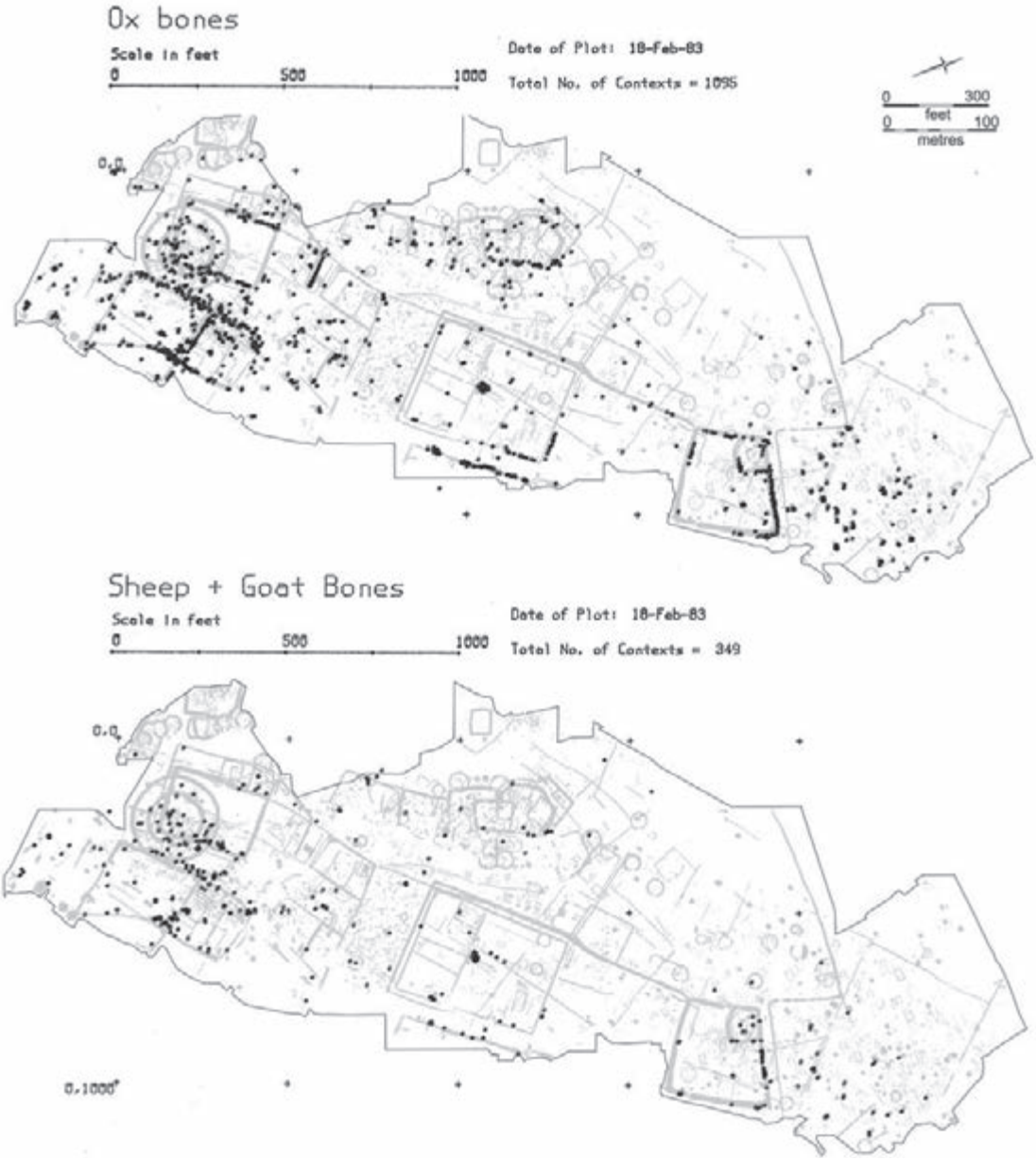


Figure 5.21. MPX Distributions – Animal Bones (II): Ox and Sheep/goat. Dating to 1983, this and the preceding site-wide animal bone plots were found in the archives (see also Jones 1983). As mentioned in Note 9, we unfortunately have no knowledge whether all of the bone had been identified or not when they were produced. Certainly, there are very few entries from the areas of the Banjo and the ABC Enclosures (see also Fig. 3.22's plots, which was instead based on Done's identifications of bone from The Rings).

ditch-sequence seems a one-off anomaly (see, though, also Bond 1988, 55).

Faunal Remains Vida Rajkovača

Mucking's faunal remains were originally recorded by Geraldene Done more than two decades ago and interpretation of the assemblage is based on the available data-set, rather than any reanalysis of the material. The following text only considers the assemblages from two Iron Age enclosures – the Belgic Banjo and the North Enclosure – and, for reasons already outlined above, the former is unlikely to have been studied in its entirety. Although the methodology of zooarchaeological analyses has shown a significant level of development since Mucking's assemblage was first studied, the data-set does contain adequate records for limited appraisal. In the absence of any ageing and biometrical data, the focus will be upon taphonomy and species-ratio. Before proceeding, and as mentioned in Chapter Three, it should again be emphasised that Mucking's

Table 5.21. Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI) for all species from the Belgic Banjo and North Enclosure only (n.f.i. denotes that the specimen could not be further identified).

	Banjo			North Enclosure					Total
	Bones & Loose teeth			Bones			Loose teeth		
Taxon	NISP	%NISP	MNI	NISP	%NISP	MNI	NISP	%NISP	
Ox	27	64.3	2	209	*74.1*	8	359	*73.9*	595
?Ox	1	2.4	.	2	*0.7*	.	1	*0.2*	4
Sheep	1	2.4	1	37	*13.1*	2	59	*12.1*	97
?Sheep	2	4.7	.	5	*1.8*	.	1	*0.2*	8
Pig	.	.	.	4	*1.4*	1	37	*7.6*	41
?Pig	1	2.4	.	1	*0.4*	.	.	.	2
Horse	7	16.7	1	9	*3.2*	1	17	*3.5*	33
?Horse	.	.	.	5	*1.7*	.	9	*1.9*	14
Red deer	.	.	.	1	*0.4*	1	2	*0.4*	3
?Red deer	.	.	.	.	.	.	1	*0.2*	1
Hare		.	.	1	*0.4*	1	.	.	1
Rabbit	1	2.4	1	8	*2.8*	1	.	.	9
Dog/ fox	2	4.7	1						2
Sub-total ID to species	42	100	.	282	100	.	486	100	810
Cattle-sized	3	.	.	96	.	.	2	.	101
Sheep-sized	2	.	.	23	.	.	.	.	25
Mammal n.f.i.	71	.	.	384	.	.	66	.	521
TOTAL	118	.	.	785	.	.	554	.	1457

soils were not conducive to the survival of bone or even teeth. Generally only forthcoming from deep-cut features, this accounts for the North Enclosure's greater numbers (and preservation) when compared to the Banjo complex.

An aspect of the assemblage that was not recorded in great detail is the preservation of the bone surface, weathering and fragmentation. 'Fragment description' is recorded, yet not the particulars of the preservation of the bone surface. A few instances of erosion of the bone surface and gnawing were noted; however, it is possible that these were difficult to observe with the material undergoing major modification post-deposition. Without going into quantitative data for each of the artefact types, it was also evident that quantities of animal bone recovered per feature are significantly less than other categories.

The overall poor preservation was inferred from the relatively small percentage of specimens identified to species level and the consequential assignation of many specimens to 'mammal not further identified'. This is especially the case with the Banjo complex, where the unidentifiable bone fragments amounted to 60.2% of the sub-set. The North Enclosure material exhibited somewhat better preservation, reflected in the 57.4% of the sub-set identified to species level and with 33.6% assigned to a size-category (Table 5.21).

No complete specimens were recovered and biometrical data was not available from the assemblages. Similarly, the effect that poor preservation could have had on the younger population within the assemblage, and the expected bias against neonate/juvenile individuals, was noted in the records. Where ageing data was collected, it only included a single line comment – 'immature' or 'mature' – and was based on epiphyseal fusion data.

The assemblage appears to be highly fragmented, having large numbers of loose teeth relative to mandibles and bones, and with the preservation bias working in favour of dense elements. The North Enclosure sub-set was recorded in greater detail and the bones-to-loose-teeth ratio showed that loose teeth accounted for 41.4% (Table 5.21). Loose cattle teeth are more likely to be recovered by hand than caprine and pig teeth due to their size, which was reflected in the considerably high proportion of loose cattle teeth. The loose teeth count for the four main species mirrors the ratio of species as recorded in the bone count, with the exception of pig.

The highly fragmentary Banjo sub-set is partial, but it broadly reflects the same species-ratio as that observed from the North Enclosure. The difference between the two sub-sets in size and fragmentation could attest to different depositional practices or recovery strategies. The North Enclosure generated more material and a near-complete range of domesticates (Table 5.21). As is the case for the Belgic Banjo, cattle were the dominant species and accounted for 74% of the identified pieces.

The site's Iron Age sub-set yielded 10 specimens (1.2%) and the Romano-British had 49, or 1.6%, affected by butchery (see the Roman volume concerning the latter data). Although negligible, some general principles could be observed from

Table 5.22. Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI) for all species from the two Iron Age enclosures compared with the Romano-British sub-set. For the purpose of comparison, bones and loose teeth counts were combined (n.f.i. denotes that the specimen could not be further identified).

	Belgic Banjo & North Enclosure			Romano-British		
Taxon	**NISP**	**%NISP**	**MNI**	**NISP**	**%NISP**	**MNI**
Ox	595	*73.5*	10	1590	*60.9*	43
?Ox	4	*0.5*	.	45	*1.7*	.
Sheep	97	*12*	3	287	*11*	6
?Sheep	8	*1*	.	13	*0.5*	.
Pig	41	*5.1*	1	142	*5.4*	7
?Pig	2	*0.2*	.	17	*0.6*	.
Horse	33	*4.1*	2	325	*12.5*	4
?Horse	14	*1.7*	.	51	*2*	.
Dog	.	.	.	39	*1.5*	2
?Dog	.	.	.	5	*0.2*	.
Cat	.	.	.	2	*0.1*	1
Red deer	3	*0.4*	1	17	*0.6*	3
?Red deer	1	*0.1*	.	10	*0.4*	.
Deer *sp.*	.	.	.	6	*0.25*	.
?Fallow deer	.	.	.	1	*0.05*	.
?Roe deer	.	.	.	1	*0.05*	.
Domestic goose	.	.	.	1	*0.05*	1
Hare	1	*0.1*	1	.	.	1
Rabbit	9	*1.1*	1	58	*2.2*	1
Dog/ fox	2	*0.2*	1	.	.	.
Sub-total ID to species	810	100	.	2610	100	.
Cattle-sized	101	.	.	702	.	.
Sheep-sized	25	.	.	34	.	.
Mammal n.f.i.	521	.	.	1500	.	.
Bird n.f.i.				9	.	.
TOTAL	1457	.	.	4855	.	.

the marks and actions noted on the butchered bone, as well as a slight difference between the two phases.

Iron Age butchery was performed mainly on cattle elements, with femorae, humerii and metapodials all chopped midshaft (with the bone being positioned horizontally on the surface), possibly for marrow extraction. This type of butchery is common on prehistoric sites, where it is clear that there was no specialist skill involved. Dense shafts were chopped with heavy blades and this would have caused bone splintering. It was not possible to observe any butchery marks on the axial skeleton in the Iron Age assemblage (skull, ribs and vertebrae) and this could suggest that carcasses were 'tabled' and hand-held in the process.

This is noticeably different from the somewhat more advanced Romano-British practices, when large elements such as femorae and humerii were chopped axially (i.e. vertically) creating a portion of bone splinters (of which there is a substantial number in the period's sub-set), and chop-marks were recorded on ribs indicating carcasses were hung. Cattle metapodials from the Roman sub-set mainly displayed knife-marks that suggest skinning. The use of the cleaver was also noted, which is typical of the period.

Although there is a generally accepted belief that Britain's Iron Age communities favoured sheep to cattle (e.g. Albarella 2000), this is a broad generalisation reflecting a strong bias towards well-researched central-southern Britain. Cattle, instead, appear to have been the favoured species across East Anglia, all throughout prehistory. Here we will try to avoid the trap of uncritically applying these generalisations to our study and, given the lack of appropriate comparative assemblages from Essex, this report will instead focus on gaining as much from the assemblage itself as possible.

Given that its preservation was overall poor, the assemblage is strongly biased towards the denser elements from large domesticates; however, cattle account for more than all other species combined. Cattle would have provided most meat and offer a range of secondary products, such as milk and traction. Pigs were the third most important species. Although their presence might suggest nearby

Table 5.23. North Enclosure pollen data.

Species	No. grains	Percent of sample
Corylus (hazel)	2	2
Gramineae (grasses)	63	58
Compositae (L; e.g. dandelions)	18	17
Compositae (T; e.g. daisies)	2	2
Plantago lanceolata (ribwort plantain)	18	17
Ranunculus (buttercup)	3	3
Rubiaceae (bedstraw)	1	1
Rumex (sorrel)	1	1
Total	*108*	*100%*

woodland for pannage, they were not so abundant as to indicate particular wealth or status.

As shown in Table 5.22, no significant change in practices between the two periods was noted in terms of the ratio of domestic species. The exceptions are the Romano-British cervid remains, which perhaps indicate a somewhat increased role of wild animals in their diet and/or hunting.

Pollen James Greig

A pollen sample was prepared to assess the potential of the series of samples collected from the North Enclosure's ditches by Dr H.C.M. Keeley. The one sample that was examined was not very well preserved. Accordingly, no further samples were prepared and the results, such as they are, refer to this one sample alone.[10]

This pollen spectrum shows strong signs of grassland, but this may be of very local significance and not really representative of the state of the landscape around the site.

Project Framing (II) – *Charting Influence (and Difference)*

We all work within operational frames of reference, both contextual and intellectual. As has been touched on more than once, during Mucking's fieldwork there were very few site parallels for any period of the site's archaeology. The few partial parallels then available were not always apt ones. Today, of course, all this has changed. We are now at the point that a number of site-type configurations are becoming highly repetitive (Evans 2012).

While not wishing to diminish Mucking's achievements, writing the site up has involved resonances with the CAU's own ongoing fieldwork and post-excavation projects. In terms of the approach to its sequence there is clearly a direct linkage with the *Over Narrows'* River Great Ouse-side excavations as regards the emphasis on tracing the cumulative spatial imprint of its successive period-occupations (e.g. Fig. 6.20). Indeed, in a recent *Landscapes* paper the interim results of the two projects were presented together (Evans 2013). With hindsight, although there are undoubtedly analytical influences between the analysis of the two sites, we can no longer be certain which came first and what was the direct path of influence: Over > Mucking or Mucking > Over. In truth, though, this does not really matter much and, for us, they now simply now remain intrinsically bound up together.

It had been hoped to apply Mucking's recording techniques to the University's annual training dig in demonstration that, when suitably controlled, the system 'worked'. Unfortunately, during those years the student dig was largely directly towards prehistoric landscape sampling and barrow-excavations, which would have proven inappropriate; it remains, nevertheless, an intriguing prospect.

Mucking also cast a shadow over the Unit's North West Cambridge excavations (hereafter NWC). These variously involved 5–25 staff over nine months during the winters of 2012–13 and the following year. Relating to the development of a new University campus on what had been its farmlands, this eventually entailed the stripping of some 16ha along a 1300m-length of a gravel ridge traversing the city's western claylands. (Due to graphic restraints, Figure 5.22 only shows the first year's core-zone, the area of excavation subsequently being expanded at both ends in 2014.) There is not the scope, nor the need, to detail its sequence, but it is relevant that some way into the work it became apparent just how reminiscent of Mucking's plan was its extensive exposure along the ridge.

However superficially similar, there were marked differences between the two sites. Some were sequence-related and had to do with NWC's 'inland' situation (i.e. off-river valley); whereas others – specifically NWC's much lower overall finds numbers – were a result of the methodologies employed, particularly a much lower excavation-sample intensity. In some recompense, NWC saw more strictly controlled sampling procedures. Not only did this entail both topsoil and reduced-level subsoil fieldwalking and metal-detecting collection, but far more intensive environmental sampling with hundreds of bulk samples processed; in addition, its

Figure 5.22. Mucking vs. North West Cambridge (2012–13 core-area), with the photograph between attesting to an odd project linkage. Taken from their 2003-05 film/travel project, Bata-ville: 'We are not afraid of the future', it shows a costumed Nina Pope and Karen Guthrie – the North West Cambridge excavation's artists-in-residence – at the former Bata shoe factory in Tilbury (photograph, John Podpadec), where as related in Schadla-Hall's 'Recollection' (see Chap. 2, Inset), Mucking's diggers took their showers.

animal bone preservation was far better, with more than 25,500 pieces recovered.

Let us first consider the differences in sequence. With just under a thousand flints recovered from NWC (*vs*. Mucking's *c*. 26,740), it evidently only saw sparse Mesolithic–Early Bronze Age visitation/usage. Its main colonisation horizon occurred during the Middle Bronze Age. This involved three sub-square/-rectangular paddocks and only a few accompanying boundary-ditches, not amounting to a fieldsystem *per se*. Associated with these were four ring-ditch monuments; the largest was 24.5m in diameter, and only one had any cremations surviving.

Thereafter, the sequence saw three Late Bronze/Early Iron Age settlements, with four-posters accompanying pits and various posthole configurations. (Separated by intervals of only 300 and 450m, their density is, in fact, rather reminiscent of Mucking's.) Arguably the most

significant of these 'open-settlements' occurred in the north, opposite Girton College. Testifying to long-term water-sourcing needs in such inland circumstances, a series of pit-wells had there been dug into the ridge's gravel/clay spring-line interface. Attesting to a continuity of daily water-supply needs, this same area was also pockmarked with later Romano-British well features.

Surprisingly, Middle Iron Age settlement was only exposed at one point: at the site's southeastern extreme (i.e. off of Fig. 5.22), where eavesgully-surrounded roundhouses lay within small 'organic-form' enclosures. In this case, the paucity of the Middle Iron Age imprint might well have to do with the ridge's surrounding, heavy Gault claylands. Somewhat further to the northeast at Longstanton, where the same ridge-line lies amid Kimmeridge clays, the density of Middle Iron Age settlements is far higher (Evans *et al*. 2008.)

Romano-British settlement occurred almost throughout NWC's stripped areas, but then these were targeted to this purpose. There were three major foci. In the southeast, a 'model' Early Roman farmstead had been arranged around both sides of a hitherto unknown northeast–southwest oriented roadway. The main Roman settlement occurred across the site's northern two-thirds. There, expanding out of a Late Iron Age core, two separate settlement-areas (whose frontages obviously lay off-site along the line of the Godmanchester Road to the north) eventually merged, with an industrial-related Late Roman focus developing within the immediate area's central swathe.

We will conclude this brief summary by comparing the vital statistics of the two sites, as it is this that highlights what makes Mucking's long-term settlement sequence so outstanding (NWC's figures only include the ridge-top sites and omit the two investigated in the adjacent lowland). It is not so much a matter of finds numbers (e.g. NWC's 24,700 Romano-British pottery sherds *vs*. Mucking's estimated 145,000), as these were essentially determined by their different excavation-sample intensities (plus the lack of kilns at NWC). Instead, their respective house and 'dead' counts will be used, which are more directly dependent on area. NWC only saw the recovery of 18 prehistoric structures (including a meagre eight roundhouses) and the traces of eight definite Roman-phase buildings. Its interments tell a similar story: only 19 inhumations and 36 cremations recovered in total, with the majority coming from the site's four small Roman-phase cemeteries. By current standards, NWC was an intense excavation. Yet, despite any superficial resemblance to Mucking, it did not come close to it in settlement intensity. With over 1,000 interments and 385 buildings (excluding 'posters'; see Chap. 6 below), Mucking's sequence was simply of an entirely different long-term magnitude and is without comparison to anything that has been excavated since. (Highlighting once more the degree to which Mucking was not just a 'typical' landscape-palimpsest sample, it really is remarkable, for example, just how few later prehistoric structures were recovered in the course of the recent Thames Gateway huge-scale 'linear projects': the High Speed 1 Route [HS1; Booth *et al*. 2011] and Kent's A253 Monkton-Mount Pleasant widening [Bennett *et al*. 2008].)

Finally, there is the issue of excavation and post-excavation techniques. Without question the backbone of recording and analysing a site on the scale of NWC (or HS1) is now its *computing*. Starting with in-field total-station digital recording, the absolute centrality of computing to all stages of the site's progress hammers home just what an extraordinary thing that – without its benefit – was attempted with Mucking's fieldwork: such perseverance, and what audacity!

'Style in Landscape' – Distributional Case-studies

Having outlined the period's enclosure sequences and other components, and then presented its specialist studies, theoretically at this point our text should seamlessly move to a 'masterful' summary-discussion section. This is not going to happen. Given the site's wealth of its data, at every step of the way further questions have been prompted. Hopefully, the text reflects some degree of progress along the way, but there is never going to be a 'final word' here.

It is therefore only appropriate that, before attempting the period's *Discussion*, we include what effectively amounts to three distributional case-studies and further interrogate how some of its artefact categories are situated in the site. Other assemblages could be addressed, but here we will concentrate on the Iron Age pottery and 'type' metalwork (i.e. coins and brooches). The first pottery case-study is concerned with the distribution of La Tène-decorated and marked vessel-bases. Suggesting all kinds of intriguing possibilities and future research avenues, they attest to the potential of Mucking's vast data-sets generally. The second pottery case-study charts our attempts to differentiate the period's 'Belgic' *vs*. its Conquest Period pottery. Particularly related to untangling the Banjo's sequence, this is a

problem that has dogged the understanding of the site's Late Iron Age for decades and, now, we like to think that some resolution has finally been achieved.

Overview is then made of the site's Late Iron Age assemblages as a whole. This is only appropriate given Mucking's long-held promise to sort out the region's prehistoric pottery assemblages, especially for the Iron Age. In doing this we have, of course, been curtailed by resourcing and only in the instance of the Banjo have finds been interrogated by fill-depth; otherwise, the analyses are essentially spatial.

It is interesting to what degree study of the site's finds, especially of its pottery, has had to fight against a perception of percentage-values *vs.* specific numbers. Its La Tène-decorated and Late Iron Age wheelmade components are relatively minor as percentages of the site's period-pottery assemblages. Yet, the actual number of sherds/vessels involved is, nonetheless, still substantial and far higher than from most contemporary sites; with Mucking there is always a risk of allowing 'specifics' to drown amid 'the mass'.

'Type' Metalwork – Coins and Brooches

The site-wide series of coins and brooches have both been thoroughly discussed by Haselgrove above.[11] Here, we will concentrate on their specific landscape situation and enclosure context. It should again be emphasised that metal-detectors were not employed in the excavations. Given this, as well as the 'pushed' pace of fieldwork across parts of the site, the recovery rate of these finds is likely to have been variable and, generally, not at current site-standard levels.

With their date-ranges and types indicated in Tables 5.24–5, the site's Iron Age coinage well reflects the nexus of its later-/'Late'-period activity, as shown on Figure 5.23. Five were each recovered from RBI/Enclosure 5 and the Banjo area. Apart from a potin in one of the graves within the ABC's subsequent Romano-British cemetery (see Haselgrove above, No. 1), and another at the end of the IA9 boundary at the north end of the site (No. 8; the North Enclosure itself yielding none), the only other isolated finds were from Enclosure 8 (see below) and a Roman ditch cutting the South Ring's circuit just east of RBI (No. 11). The latter must rank as the site's most remarkable coin – a silver issue of Cunobelin of earlier first-century AD date – which, as Haselgrove notes, is suggestive of the site's importance and its external contacts. Otherwise, single bronze Early Colchester/Cunobelin coins were recovered from the Banjo (No. 13; AD 1/10–*c.* 40), as well the aforementioned find from Enclosure 8 (No. 12; AD 1/10–20/30).

Of those recovered from RBI/Enclosure 5, three potins are of late second- to early/mid first-century BC date (Nos. 2–4) – these being localised to Enclosure 5's area – with the other two dating to the late first century BC (Nos. 9 & 10; both in close proximity along RBI's eastern circuit). Reflecting broadly the same date ranges, their clustering within the area of Enclosure 10 and just extending into the northern end of Enclosure 21 is noteworthy (Nos. 5–7, 13 & 14). Also coinciding with a relatively high brooch density (see below), nothing within the features in that immediate area would readily account for this. This concentration seems all the more marked as no coins occurred within Enclosure 11's arc (nor in Enclosure 13). Among the Banjo's coins, aside from the already cited Cunobelin bronze (No. 13), Haselgrove remarks that Number 7's potin might have been a Gaulish import.

The occurrence of two early brooches in the site's northern quarter must variously relate to the evidence of Early Iron Age occupation there (see Haselgrove above, No. 2: late sixth–early fifth century BC) and what was probably the earlier Middle Iron Age origins of the North Enclosure (No. 1: fourth century BC). As is evident in Figure 5.23, there was a concentration of brooches in that enclosure's southwestern corner. There, a Colchester derivative (No. 36) occurred in its ditch's upper profile, with a nearby Colchester-type proper in the lower, middle profile (No. 27). Also adjacent was a fragment of a 'Colchester construction' (No. 55), though it actually came from the northern terminal of the IA10 boundary.

Table 5.25 compares the frequency of brooch-types between the site's three main Iron Age enclosures. Leaving aside the North Enclosure's early brooch, the most striking aspect of the main series is RBI's six simple wire-types, with the Banjo having four. Indeed, the number associated with RBI would increase if Enclosure 5's brooches – two of this type alone (both iron) – are added to its figure. In contrast, the North Enclosure only had one simple wire brooch and this could reflect the type's mid first-century BC to mid first-century AD dating; by the end of that period occupation within that enclosure was evidently drawing to a close. Apart from the fact that it had two Colchesters, the North Enclosure does not really have a distinct 'brooch profile' as such, with its types otherwise occurring only singularly. It might

Table 5.24. Frequency of Iron Age coins types.

Coin	Number present
Flat-Linear (Class I) potin	6
Other potin	2
Uninscribed bronze	2
Cunobelin silver	1
Cunobelin bronze	2
Uncertain bronze	2
TOTAL	14

Figure 5.23. Distribution of Iron Age coins and brooches (plus Conquest Period; left, photographs of Cremation 1011's Simple Gaulish brooch (B5), Early Colchester series bronze coin with Janiform head and, reverse, horse (No. 13), and Early Colchester series silver coin with winged seated figure (No. 11; with drawing, right, showing likely full image, from Creighton 2006, fig. 2.3). The possible brooch fragment locations relate to various catalogue entries and which are there assigned with greater or lesser certainty (e.g. '?fibula pin'), some of which are illustrated in Figures 4.30 and 5.9. While all remain candidates, a number were viewed by Haselgrove and found to be undiagnostic.

Table 5.25. Brooch-type frequency by Enclosure (the additions to the Banjo's tally relates to various catalogue-entry 'fragments'; see Fig. 5.23).

	N. Enc	Banjo	RBI	Crems	Total	Broad Date
LT B	1				1	4th BC
LT D1–D2	1		1	2	4	1st BC
Colchester	2	1		3	6	M 1st BC – M 1st AD
Strip		1	1	1	3	M 1st BC – M 1st AD
Simple Wire	1	4	6	1	13	M 1st BC – M 1st AD
Langton Down				1	1	M 1st AD
Hod Hill					1	M–L 1st AD
Colchester Derivative	1	2	2	2	7	M–L 1st AD
Penannular	1	3	1		4	Und.
Frags	3	3 (+ 4)			6	Und.
TOTAL	10	14/17	11	10	45	

be suggested that, also having a penannular brooch, it had affinities with the Banjo's series – it having three such brooches and a singular Colchester (RBI having neither type) – but, in truth, the numbers are too low to be convincing.

While possibly relating to the later kilns occurring within the area of Enclosure 10, that two Colchester derivatives (Nos. 33 & 34) and a strip bow brooch (No. 40) of mid–later first-century AD date coincided with the cluster of five first-century BC potins in the Banjo area must be considered an anomaly and is without obvious explanation. This is also true of the fact that no post-Conquest brooches occurred within arcs of Enclosure 11/12.

As discussed above, the three iron brooches associated with Enclosure 13 would seem surprisingly early, given that enclosure's Late Iron Age/Conquest Period assignation. Aside from a bow and spring-part fragment (No. 52), they were both simple wire-types dating to the second- and third-quarters of the first century BC (Nos. 8 & 9).[12] This group seems all the more distinct as there were no iron brooches within the Banjo's assemblage (the North Enclosure having two and RBI/Enclosure 5, six).

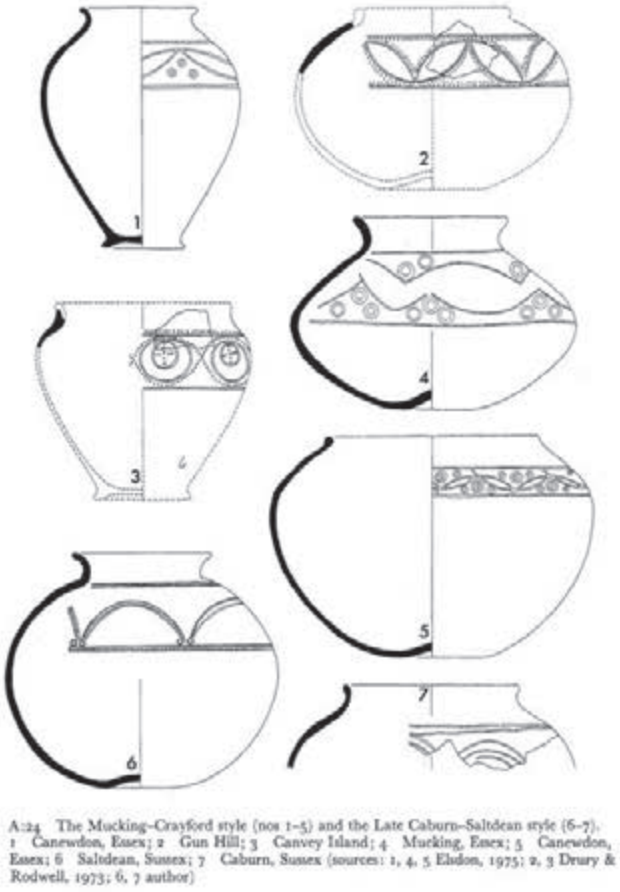
Leaving aside the Colchester and Hod Hill brooches found just east and south of RBI (Nos. 25 & 42; the latter *Grubenhaus*-derived) – as well as the three Colchester derivatives there (Nos. 30, 31 & 59), plus an iron brooch fragment – the only other group that requires mention lay just to the north. There, three brooches occurred within the immediate vicinity of Cemetery V, with one directly cremation-related (No. 32/Crem. 77). The nearby recovery of the Cunobelin bronze coin within Enclosure 8 together tells of the area's Late Iron Age/Conquest Period presence.

Table 5.25 also includes the brooches with cremations. With three out of 10 being Colchesters, this might be thought to reflect a markedly high burial-context frequency. Yet, should these cremation-accompanying Colchesters, in effect, be added to the Banjo's figures to complete its profile as their dead are likely to have derived from it (and possibly RBI). Given that the Banjo had no iron brooches but that three of the cremations within the site-central vicinity did (B1, B2 & Crem. 868), does this 'burial displacement' account for their absence in that enclosure complex? What is most marked of the cremation-context brooches is the near-complete absence of simple wire brooches, with only Cremation 868 having an iron version of one (No. 5). Equally, there seems a tendency for the larger, more elaborate brooches to feature in burials (Nos. B4/Crem. 651 & B5/Crem. 1011). This is not an absolute distinction and there were larger cremation-context brooches (e.g. Nos. 3, 19 & 28). Nonetheless, this could reflect that it was the smaller brooches that were more often worn in the course of daily-life activities and which, thereby, would have been more prone to accidental loss.

Before progressing, the 'coverage' of the site's brooch and coin series needs to be stressed. Directly relating to the case-study that follows, they span the later/Late Iron Age and clearly attest to the site's sustained usage in the first half of the first century AD. The significance of this cannot be overestimated, as it greatly encouraged our efforts to realise the site's otherwise largely 'missing' pottery-register over that time.

La Tène Wares and Marked Bases

Cremation 87's complete La Tène-decorated jar is certainly beautiful and is a vessel of some renown



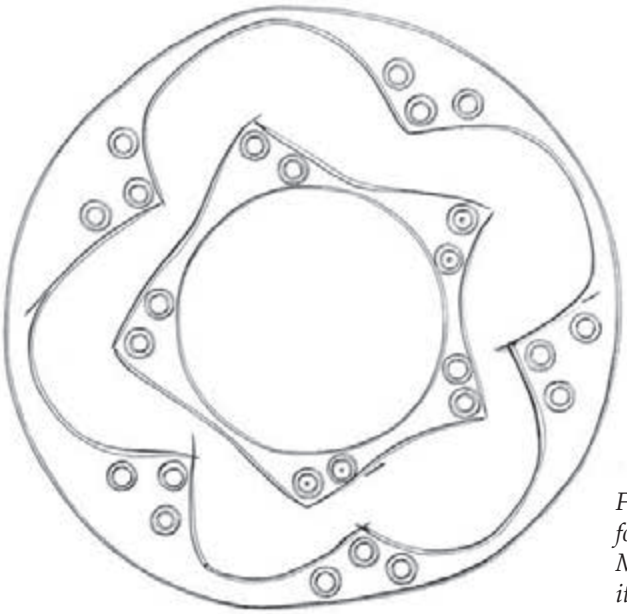


Figure 5.24. A Renowned Pot: The Cremation 87 vessel as found in situ *(upper right) and as featuring in Cunliffe's Mucking-Crayford style group (No. 4; 1978, fig. A:24); below, its complete decorative schema as seen from above.*

(Fig. 5.24), featuring in both Elsdon's *Stamped Iron Age Pottery* (1975, pl. III & fig. 13) and in Mucking's type-site designation for Cunliffe's Mucking-Crayford style-zone (1978, 53, fig. A:24).[13] Given its 'type status', there is a certain irony that no unequivocal parallels can be established for having such a vessel accompany a Late Iron Age cremation.[14] Essentially it seems to be a burial in the Aylesford-Swarling tradition, but employing a vessel that would comfortably be dated some decades earlier (see Cunliffe quotation, below); perhaps,

Figure 5.25. 'Style in Landscape': Distribution of La Tène-decorated pottery, with selected vessel and metalwork illustrations

thereby, even suggesting its possible curation. In many respects, it seems somehow typical of so much of the site's later prehistory, with its square barrows, the 868 cremation-pit and the Banjo's layout similarly without immediate direct parallel. As is so often the case, digging 'more' rarely provides greater absolutism, but instead fosters a wider range of questions. Indeed, as will be shown, the same is true of the site's decorated La Tène Ware assemblage generally.

When compared to the handful of such decorated

ware sherds recovered from other sites of that time, Mucking's assemblage is certainly substantial; nevertheless, Brudenell above has rightly stressed what a small proportion of the site's later Iron Age pottery it represents. It is, though, sufficiently large and dispersed across the site to allow us to query the distribution of *style(s) in landscape*, and perhaps on that basis even contemplate attributing the Cremation 87 pot to one of its enclosures. As indicated in Figure 5.25, the latter proved a vain hope, as that vessel's stamped-circle and curvilinear motifs are common throughout. That figure, nevertheless, conveys the shared design patterns – and quality – of some of the site's metalwork and pottery.[15]

Portraying the distribution of this very distinct pottery style in this manner hammers home the incomplete nature of the assemblage. We are dealing with nothing like the totality of these vessels. Just 133 sherds from a minimum of 72 different vessels can only amount to a tenth or less of the original number of sherds. In the light of Mucking's very intensive excavation policy, this highlights just how much loss there must have been, first, with the plough-dissection of the site's surface strata and, thereafter, the blanket machine-stripping of its soil-cover (see, though, Chap. 1, Note 12).

Figure 5.25's distributions also raise further issues, particularly concerning its concentrations. In the case of the North Enclosure, it is clear that though the frequency of that ware there was generally low, it was much higher in the area of Roundhouse 110 and its sub-enclosure. This is especially marked in relationship to Roundhouse 89 in its opposite corner (but from where the La Tène-style boss-and-petal-motif mount derived) and which suggests either a differential function or that the latter building was somewhat later (remembering, too, that a Roman sherd apparently came from one of its postholes; see, though, Garrow & Gosden 2012 concerning the longer 'duration-currency' of La Tène-styles on the period's metalwork as opposed to pottery).

Relatively high levels of La Tène-decorated wares were also associated with the western side of RBI/Enclosure 5. Although RBI appears to have seen less of these wares, sherds apparently deriving from four different such vessels came from the segment excavated in its southeastern corner, including substantial parts of two curvilinear-decorated pots (<152> & <156>). This seems a remarkably high density and could suggest that some kind of 'special' deposition (at two other points around Enclosure 5/RBI's west circuit, multiple La Tène Wares came from the same segments).

While there was no particular focus to the distribution of this pottery in the Banjo's compounds – the distribution there being 'respectable' but not distinct – just to the east is another cluster. This evidently included a 'loop'-decorated biconical jar from a pit (<212>; 782N × 266E), with a significant concentration of five such sherds immediately adjacent. With one, <226>, occurring residually within a Romano-British kiln, there seemed no obvious way to account for the other material at this point. Something appeared to have been missed here, with the only possible candidate for their source being a small rounded-corner gully-enclosure (No. 14; Figs. 4.8 & 4.82). It was this that raised the possibility of this setting's later Iron Age attribution, perhaps demarcating a structure or else mortuary-related (see Chap. 4, *Other Components*).

Displaying the site's La Tène-decorated wares in this manner makes one realise just what a difference of quality there is within its assemblage. Some of the vessels appear to reflect the hand of one or more accomplished potters (e.g. Crem. 87's pot, <42> & <212>), but others seem crudely executed (e.g. <152> & <202>). Alhough the latter could, perhaps, have been 'apprentice pieces', on the whole *there does not seem to be evidence here of a single specialist workshop*.

Figure 5.26 shows the distribution of the site's 'marked' Iron Age pot bases, drawing upon Brudenell's data. On the grounds that they were evidently executed pre-firing, it is understood that these relate to makers' marks, rather than 'ownership' (i.e. household affiliation; see Evans & Hodder 2006b, 247 concerning historical/ethnographic household markings and their various 'translations'; see also Jones 1981). As indicated in that figure's legend, for our immediate purposes they have been divided into four main motif-types (plus 'others'; e.g. the lattice of Fig. 5.5.88). Based on this, four type-clusters have been identified. Of these, by far the most convincing are those at the site's extremes. At the southern end, this includes the occurrence of three Type 1 cross-markings (Group C). Also nearby, within the area of Enclosure 5/RBI and the ABC Enclosures (RHs 1 & 24), were four Type 2 cross-hatch bases (Group D); spread across an area of *c.* 0.5ha, this represents the totality of this type's site-distribution (whereas two isolated Type 1 crosses also occur in the northern third of the site, one associated with RH93).

In the north of the site, four of the site's seven Type 3 wiped-cross bases were associated with the North Enclosure's Roundhouse 110 (Group A; with another of this type associated with Roundhouse 104 nearby, and two others both coming from RH25 in the south). Three out of five horseshoe-loop bases came from the Banjo-area (Group B), with otherwise one each coming from the RBI-area and Roundhouse 1 (ABC Enclosures).

A house-focus for this material seems obvious. On most sites this would be an exaggerated claim, given the higher sample-intensity usually granted to the excavation of their structures as opposed

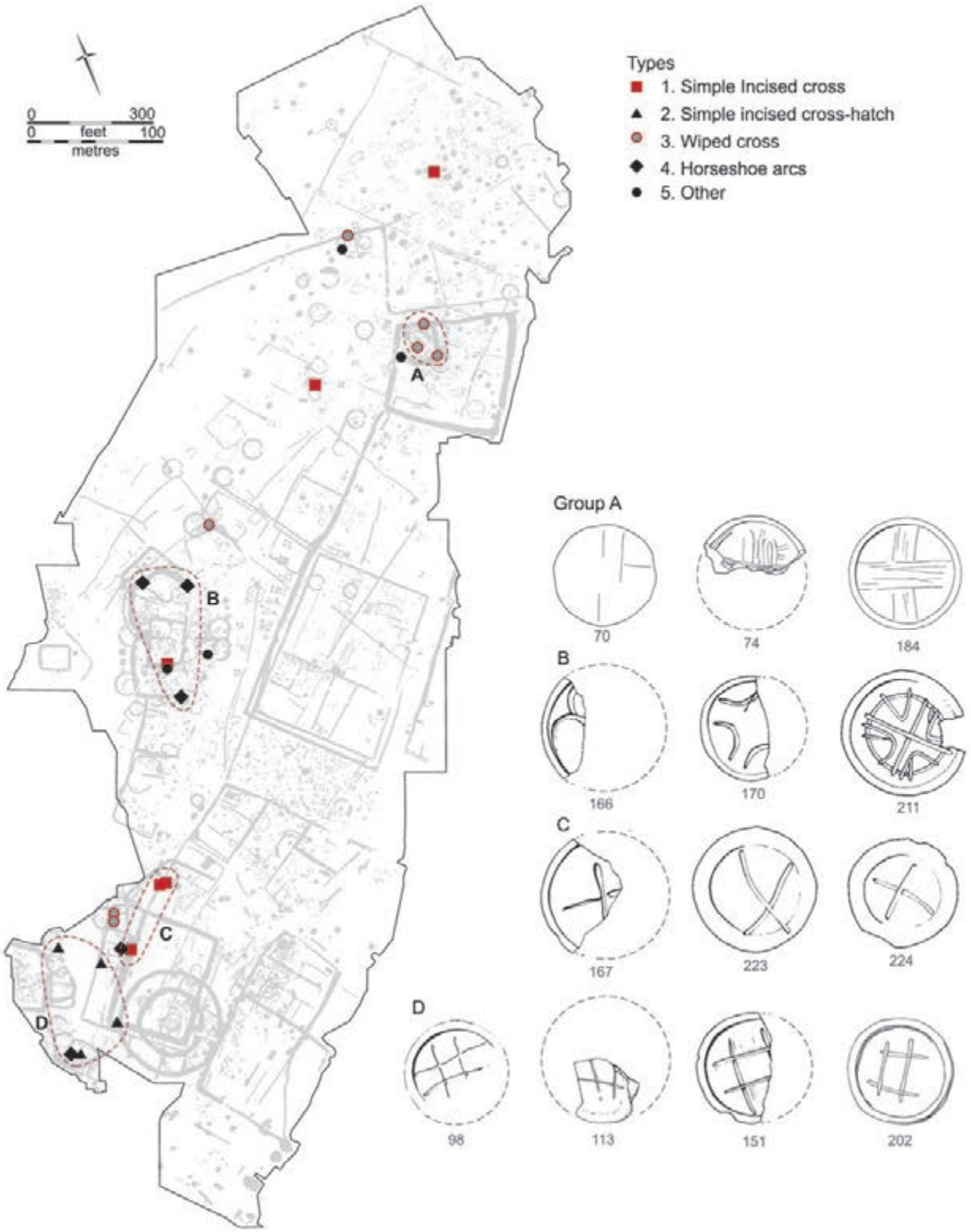


Figure 5.26. Makers' marked pottery bases, their 'types' and distribution.

to enclosure/field boundaries. Yet, in the light of Mucking's 'total excavation' policy, here this is not the case. Accordingly, that three such bases were found associated with Roundhouse 110 (3 × Type 3), and two each were associated with Roundhouses 1, 25 and 104 (Types 2/4, 2 × 3 and 3/5, respectively) – in addition to single instances within Roundhouses 24, 69, 79 and 93 (Types 2, 4, 3 & 1, respectively) – is

surely meaningful and more than half of their total number were directly house-related.

As is our custom, we tried pushing the data further to see if there were any obvious correlations between the pottery base-marks and vessel-decoration motifs. This initially proved fruitful as a correspondence could be posited between the site's one horseshoe-loop-decorated vessel – the aforementioned biconical jar (Fig. 5.5.212) from the southeastern margin of the Banjo complex – and Group B's Base-type 4 cluster. Yet, the cross-hatch and horseshoe-loop motifs on the bases variously recovered from Roundhouses 1 and 24 (ABC Enclosures-associated) had no such links to the rest of their assemblages, but these did include vessels with simple, incised cross-type patterns on their interior rim-edges (i.e. akin to Base-type 1; Figs. 5.5.91, 5.5.93 & 5.5.112). With hindsight, we should have been warned off any such naive attempts to seek direct base- and main vessel-motif 'style' correspondence due to the fact that that the complete vessel, with a cross-hatch base marking (Type 2) from the RBI-area (Group D), carried only curvilinear scrollwork decoration (Fig. 5.5.202). Indeed, while certainty is not possible, given that only in a few instances do base-marked sherds also include their vessel's upper profiles, in most cases they seem to occur on plainware vessels; for example, on <211> no 'loop'-decoration accompanied its so-marked base.

This returns us to the evidence of Figure 5.25's distributional plot. Even in those areas where La Tène Wares were most concentrated, in Roundhouse 110 and Enclosure 5/RBI – both points of high base-motif densities – there they also occurred with plainware vessels. Consider the 'feature' vessel-sherds from RBI's southeastern corner segments, as alongside the sherds from its four La Tène Ware pots there were also at least two from plain burnished-ware vessels (<158> & <160>). As stressed by Cunliffe, all this attests is that this was a matter of *mixed assemblages* and not a single exclusive-use style:

> In the past the decorated vessels have been selected for comment with little notice being taken of the associated plain wares. This unfortunate tendency has resulted, in part, from the lack of good stratified groups, a lack of which recent (unpublished) excavations at Mucking and Little Waltham, Essex, are fast making good. At Gun Hill, Essex, coarse ware and fine plain wares have been discovered in loose association with decorated vessels …
>
> Little dating evidence has yet been published, but at Gun Hill pottery of the Mucking-Crayford style can be shown to predate the appearance of wheel-turned vessels of the Aylesford-Swarling group. More precision will be possible when the assemblages from Little Waltham and Mucking have been published. That the style fits between the Darmsden-Linton group and the Aylesford-Swarling group is, however, clear (1978, 52).[16]

Given the low overall numbers this involved, nothing highlighted here amounts to statistically valid patterning. It, nonetheless, suggests propensities and the only other site we know of where there are sufficient base-marks/-decorations to attempt anything like this type of distributional analysis is Dragonby, Lincs., although the scale of its excavation was much more limited (Fig. 1.7; May 1996, 429, 433, 511–12, figs. 19.17 & 19.67).[17] As such, and if nothing else, all this once again demonstrates the tremendous potential of Mucking's vast data-sets. We could go on in this vein and even now consider the long-term trajectory of such 'maker' symbol-sets over time. This would involve, for example, comparing the simple cross and cross-hatch base-motifs presented here with that recorded on one of the site's Late Iron Age vessels (Fig. 5.8). We could then proceed to consider them in relationship to the variously incised simple cross-pattern and vertical line-infilled square-/ladder-motif graffiti (aka 'cricket-stump') on a number of the site's Early Roman pots (see Roman vol.; see, also, Jones 1972b and e.g. Biddulph *et al*. 2011, 55–7, fig. 17) and – further to Thompson's observation that Mucking's sphere of influence then extended upstream towards London/Londinium – emphasise that the same markings have been found on vessels from Moor Hall Farm, Rainham (Howell *et al*. 2011, 68, fig. 58). This is a proverbial problem/temptation of Mucking's data and its near-endless ramifications and, in this capacity, knowing when to finally call time on things has to be a virtue.

Late Iron Age Assemblages – 'Belgic' and Conquest Period Wares

During the analysis for the Romano-British volume, there was felt to be little evidence for pre-Conquest wheelmade pottery production at Mucking, and several forms in particular fabrics were therefore assigned a start date of AD 50/60 or AD 60/70 in the type series presented there. These included some of the wide-mouthed jars in Series A (those with flattened bead or bifid rims, known as forms AB02, AB03 & AB04), many of the wide-mouthed cordoned jars of Series C, some of the storage jars and buckets of Series J (JA01 & JA04 already identified as possibly later Iron Age, and JC01 & JC03 as potentially so), some of the flagon forms, the M Series of globular and butt beakers, some of the O Series of biconical vessels, the P Series of Belgic cups, and many of the Q Series of dishes and S and T Series of bowls.

In her initial reassessment, Thompson (whose impression of the Mucking material in the 1970s and 1980s was that the kiln products were post-Conquest) suggests above that a few shell-tempered wares were being produced pre-Conquest, and some grog-tempered wares into the second century AD, as is seen elsewhere along the Thames Estuary. She sees

Enclosure 9	BLA1	BLA2	BLA3	BLA4	BLB2	FG	FLC3/5	GRY	LNA/B
A forms	5	0	0	0	0	0	0	0	0
C forms	0	0	0	0	2	0	0	0	0
J forms	2	1	0	0	0	0	0	0	0
Unclassified	12	4	2	3	2	2	2	3	2

Enclosure 10	BLA1	BLA2	BLA3	BLA4	BLB1	BLB2	BLB3	BLB6	BLC2	TRA	TRB	GVC
A forms	10	1	0	0	0	0	0	0	0	0	0	0
C forms	0	0	0	0	7	3	0	0	7	0	0	0
D forms	0	0	0	0	0	0	0	0	0	0	1	0
J forms	1	0	0	0	0	1	0	0	0	0	0	1
M forms	0	0	0	1	4	0	0	1	2	0	0	0
P forms	0	0	0	0	1	0	0	0	0	0	0	0
Unclassified	19	2	1	4	4	4	2	0	5	3	1	2

Enclosure 11	BLA1	BLA2	BLA3	BLA4	BLB1	BLB2	BLB3	BLB5	BLB6	BLC1	BLC2	NSP
A forms	19	4	1	1	0	0	0	1	0	0	0	0
C forms	0	1	0	0	4	13	0	0	2	1	3	0
D forms	0	0	0	0	0	2	0	0	1	0	0	0
J forms	2	0	0	0	0	0	1	0	0	0	0	0
M forms	0	0	0	0	2	9	0	0	0	0	2	0
P forms	0	0	0	0	0	2	0	0	0	0	0	0
Q forms	0	0	0	0	1	0	0	0	0	0	0	0
Unclassified	34	4	3	5	8	31	1	0	9	2	2	1

Enclosure 12	BLA1	BLA2	BLA3	BLA4	BLB1	BLB2	FG	GRY
A forms	40	0	0	0	0	0	0	0
C forms	0	0	0	0	0	6	0	0
J forms	40	0	0	0	0	0	0	0
M forms	0	0	0	2	0	0	0	0
Unclassified	40	2	2	30	1	2	3	4

RBI	BLA1	BLB1	BLB2	BLB3	BLB5	BLC1	GVC	GRY	GRYS	TRA
A forms	26	0	3	0	0	0	1	2	0	0
C forms	0	8	10	1	0	2	1	0	0	0
D forms	0	3	2	0	0	0	0	0	0	0
J forms	7	0	0	4	1	0	0	0	0	0
M forms	0	18	3	0	0	0	0	2	0	0
P forms	0	0	1	0	0	0	0	0	0	0
Q forms	0	4	0	0	0	0	0	0	0	0
T forms	0	0	0	0	0	0	0	0	0	1
Unclassified	33	18	21	8	0	5	2	22	7	3

Table 5.26. Banjo and RBI Enclosures 'Belgic' pottery forms and fabrics.

a large proportion of the relevant forms as being post-Conquest, with the exceptions being the shelly fabric storage jars (JA01) and the barrel jars of the M Series.

However, the plotting of the Banjo's distributions (Fig. 4.69) and the analysis of Enclosure 13's pottery (Table 4.4) suggests that this picture is not so clear-cut. The plot of apparently Early Roman wheel-thrown pottery delineates many of the Iron Age enclosure ditches in the western part of the site, implying that our dating assessments were not quite right (as later Iron Age pottery and brooches were clearly being found in the same features and levels as this 'Roman' pottery). As an exercise, the pottery assemblages (as recorded in the Romano-British pottery database) from a selection of these features were interrogated in more detail, with tabulation of those forms and fabrics that derived from depths of Level 4 and lower presented in Table 5.26 (by sherd number, with only definite fabric identifications included).

In Enclosure 11's circuit, sherds from these deeper

levels are predominantly in shell-tempered and sand- and grog-tempered fabrics (Fig. 5.27), and the only form/fabric combinations with more than two sherds represented were wide-mouthed jars with bifid or flattened bead rims (i.e. Forms AB02 & AB03) in a shell-tempered fabric (BLA1). In Enclosure 10's ditches this was only true for flattened bead rim jars in shell-tempered fabric, while in RBI this was again the most numerous fabric, with more than two sherds noted in this same form/fabric combination, as well as a platter form (QA02) and a cordoned cavetto rim wide-mouthed jar (CC01) in sand- and grog-tempered fabric, and bead rimmed or ledge-rimmed jars (AB05 & AB06) in shell-tempered fabric. Here, only flattened bead rim jars (AB03) in a shell-tempered fabric (with 15 sherds) were at all numerous.

There is thus a strong suggestion that one type of this 'Roman' pottery in particular – flattened bead rimmed jars in shell-tempered fabric – was, in fact, pre-Conquest in origin and contemporary with the later Iron Age occupation of the site. There is no suggestion that the known kilns at Mucking were producing this pottery. Roman Mucking saw two types of kilns. The smaller, simpler kilns have been demonstrated to have been producing the characteristic ledge-rimmed jars in (the same) shell-tempered fabrics, but there is no suggestion that they were also producing the apparently earlier flattened bead rimmed jars; the distribution of these two jar forms across the site demonstrated this quite conclusively (Fig. 5.28). Moreover, at least one of these simple kilns (K21) was constructed in the top of filled-in Enclosure 11 ditch (i.e. the same ditch producing the flattened bead rimmed jars from its lower levels). The later and more sophisticated kilns at Mucking (whose products were published in Jones & Rodwell 1973) were producing the characteristic greywares – both slipped and non-slipped – and date to the second century AD at the earliest.

One question is, therefore, whether this pottery was being produced at Mucking, and if so, where? A total of 2534 sherds (60.21 EVEs) of these earlier jar forms (AB02 & AB03), predominantly in shell-tempered fabric, are recorded, and they are found throughout the 'Banjo' area, and within the fills of RBI. A few sherds of these pottery forms are also found in sand- and grog-tempered 'Belgic' fabrics, and it is argued in the Roman volume that there must have been a series of surface-built kilns producing these earlier fabrics (which are otherwise used for the production of large storage jars, cordoned jars, globular and butt beakers and Belgic cups (i.e. the C, J, M & P Series). It would seem sensible to argue that the same putative kilns were also producing the early jar forms in shell-tempered fabrics.

It is only appropriate that the site's kiln furniture is presented within the Roman volume. Attempting though to distinguish the loci of any earlier kilns, for our purposes here Figure 5.29 (right) shows the distribution of firebars that were not directly recovered from kilns, of which 925 are recorded (97.5kg). Unfortunately, the relevant computer file-entries are by weight and do not include dimensions; therefore, their distributions cannot currently be analysed by what might well be their respective Roman and Late Iron Age types (i.e. 'chunky' *vs*. slender pieces). That said, while the greatest firebar spreads and densities correlate to Roman kiln locations (e.g. the Belgic Banjo and the Roman Southern Enclosures), their distribution – especially within the north of the site – is much more widespread. Particularly noteworthy in this regard is the concentration within the area of Enclosure 13 and the fact that they apparently occurred associated with a number of roundhouses (Nos. 20, 24, 30, 45, 64, 67, 69, 90, 101, 102 & 110). While the type-attribution of individual fired clay artefact fragments can be difficult (e.g. 'Belgic Bricks' *vs*. firebars), the plotting further reinforces the possibility of the site's Late Iron Age pottery production and this is certainly a topic deserving further study.

One puzzle is that of the '*Terra Rubra*' fabric termed TRA in the Mucking pottery database, whose distribution is striking. This was described in the fabric series as 'one of a group of three fabrics used at Mucking to make local *Terra Rubra* copies'. There are 343 sherds (2.00 EVE, with another possible 97 sherds) of this imitation fabric.[18] Their distribution mimics that of the early jar forms in shell-tempered fabrics very well, with the proviso that it was only recovered from the upper fills of these ditches, whereas the shell-tempered sherds were also found lower down (Fig. 5.27). It may be that the imitation *Terra Rubra* belongs to a slightly later time horizon, albeit one that is still pre-Conquest.[19]

Such a pottery-using horizon is also given support by the presence of some sherds of early amphorae. At least one Dressel 1 handle was identified (from pit 1157N × 237E within Enclosure 9; see also Fig. 4.68 for another apparent identification), and a four further bodysherds suggested as possibly also of pre-Conquest date (see Fig. 5.29 and Williams in Roman vol.). There are also a few sherds of real *Terra Rubra* and *Terra Nigra* at Mucking (Fig. 5.29). There are four sherds of *Terra Nigra* (two definite imports, of Cam 14 and Cam 58, and two that might be Colchester products, also Cam 14 and Cam 58);[20] one platter-sherd came from the Double Ditch/Central Enclosure's main well (No. 4), while two sherds of cups and a platter all came from the Banjo-area. The *Terra Rubra* sherds, although slightly more numerous, represent fewer possible vessels. Five sherds of Cam 76 all came from nearby fills in Well 4, and presumably represent a single (old) vessel caught up in that deposit, while a further five sherds of Cam 12

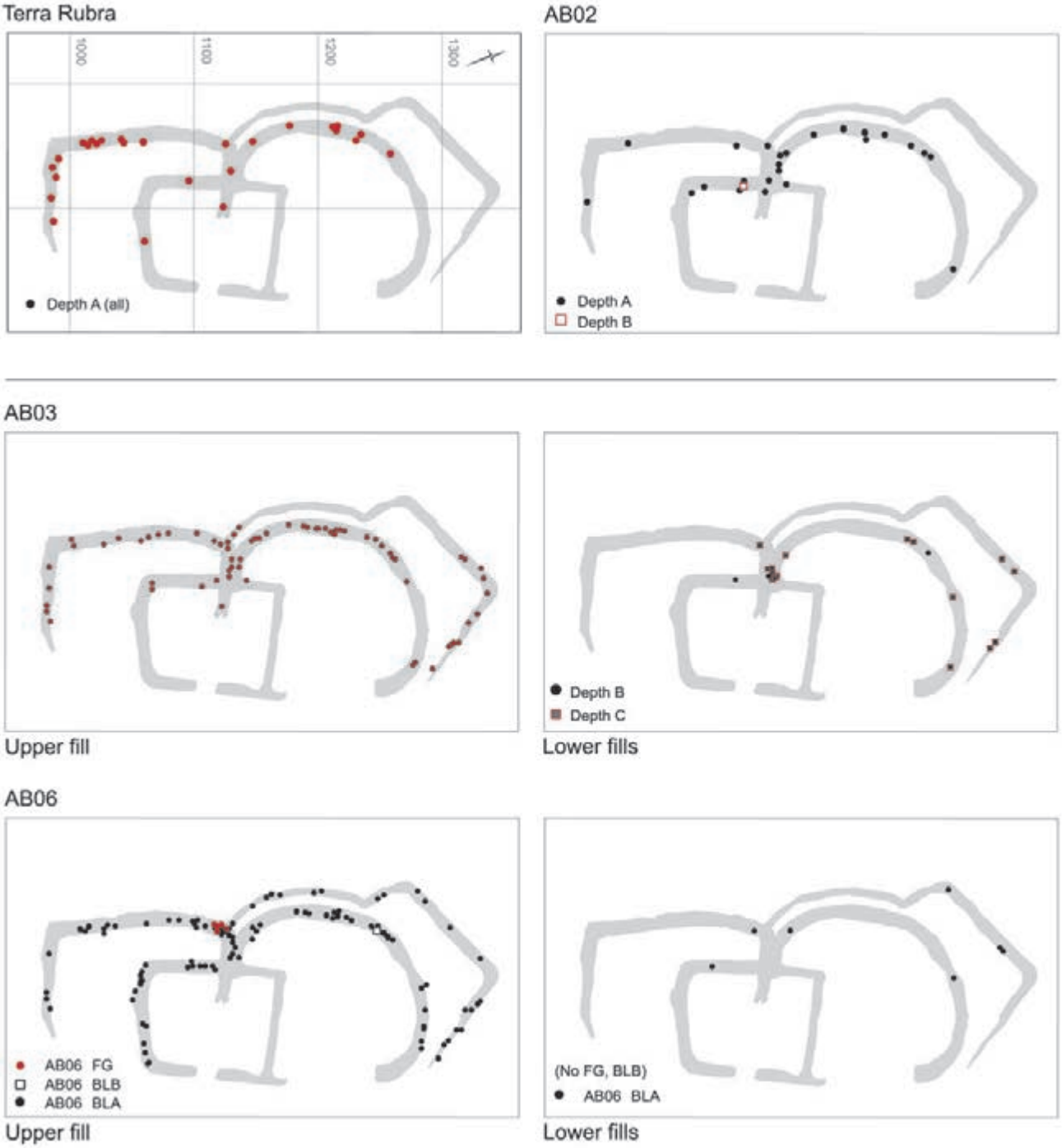


Figure 5.27. Belgic Banjo, distribution of Terra Rubra *and 'Belgic' pottery by feature depth.*

represent another single vessel in Enclosure 5 and an intercutting pit (another two came from the ditch separating Enclosures 21 & 22).

The distribution of the pre-Flavian samian also supports the existence of this horizon (Fig. 5.29). A total of 36 sherds (0.61 EVEs) were recovered, with their distribution largely falling into the Banjo-area and RBI, with the exception of a handful of sherds from around the Roman Double Ditch/Central Enclosure. These were all of South Gaulish origin and two examples carry stamps of Murranus and Licinus (see Bird & Dickinson in Roman vol., Stamp nos. 36 & 46; see Fig. 4.85 for the frequency of the site's first-century AD samian).

There would, therefore, seem to be fairly conclusive evidence for pre-Conquest wheel-thrown pottery production at Mucking of some significance (although not traceable to any of the site's surviving kilns);

Figure 5.28. Site-wide distribution of AB02/3 and AB06 jar-forms.

Figure 5.29. Distribution of Terra Rubra/Nigra, *Dressel 1 amphora and early samian pottery (left); right, firebars and Romano-British kiln locations.*

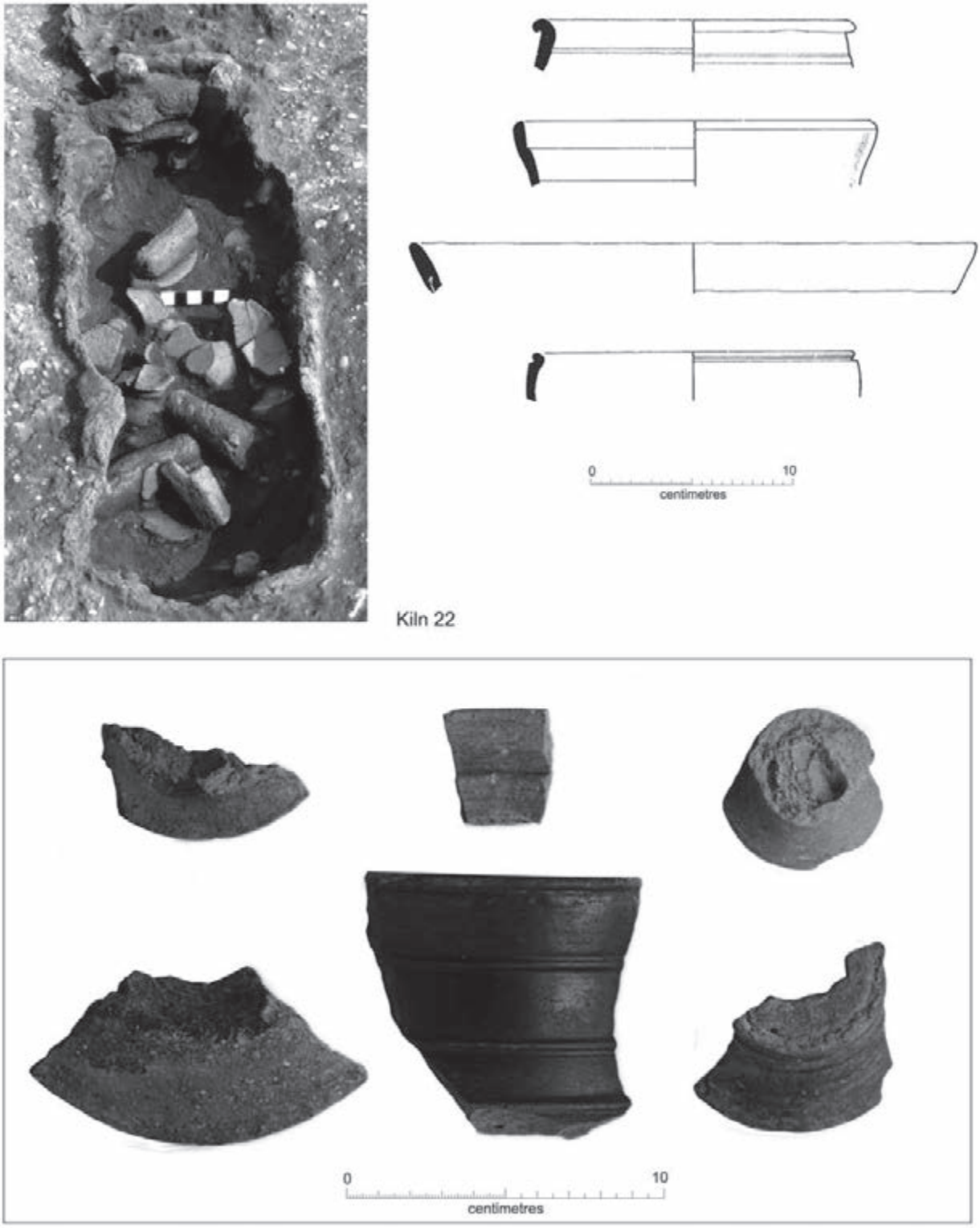


Figure 5.30. Terra Rubra *products, with Kiln 22 (top; see Roman vol.); Mucking lecturing slide (i.e. T. Jones,* c. *1970s vintage) entitled ''Belgic' carinated cup & pedestal bases'.*

this seems to be contemporary with evidence for Continental imports. We can quickly characterise the functional make-up of this assemblage, and compare it to that of the Roman-phase settlement (Table 5.27; see also Roman vol., tables 5.3–7). With the early shell-tempered jars reclassified as later Iron Age (rather than Phase 1 Roman, as they were previously), the later Iron Age pottery assemblage from Mucking is still heavily dominated by jar and other food preparation forms (these comprising 85.5%

Table 5.27. Late Iron Age and Romano-British pottery assemblage characterisation.

	Later Iron Age (including early shell-tempered jars)	**Romano-British Phase 1**	**Romano-British Phase 2**
Dining	2.4	5.8	24.0
Drinking	11.7	10.6	3.7
Food Preparation	85.5	80.1	68.6
Serving	0.4	3.5	3.7

Table 5.28. Main enclosure, Late Iron Age assemblage 'marker' tallies.

	North Enc.	**Banjo & Enc. 13**	**Enc. 14**	**RBI & Enc. 5**
Pre-Flavian Roman coins	-	+	-	-
Pre-Flavian samian	-	++	-	+
Conquest Per. brooches	+	++	?	++
Dressel I	-	+	+	+
Terra Rubra/Nigra	- (1 only)	++	++	++
Belgic (AB02/03)	+ (6 sherds only)	++	++	++
La Tène Ware	++	+	++	++
LIA brooches	++	++	+ (?)	++
Iron Age coins	-	++	-	++

of the assemblages by EVEs), with drinking vessels the next most dominant (at 11.7% of EVEs), then dining (2.4%) and serving (0.4%). These are fairly similar to the picture seen in Phase 1 of the Roman period (which saw 80.1% food preparation, 10.6% drinking, 5.8% dining and 3.5% serving), which itself then saw a dramatic change in Roman Phase 2 (68.6% food preparation, 24.0% dining, 3.7% drinking and 3.7% serving). As well as elements of continuity in its pottery production, therefore, the site seems to have seen some continuity in its eating and drinking practices over the Iron Age to Roman transition, with major changes only in evidence in Phase 2 of the occupation (although this may of course largely be an effect of the types of pottery that were being manufactured at the site, not all of which would have been intended for use there).

Having outlined these matters, we can now turn to an overview of the terrace's main Late Iron Age assemblages. As is apparent in Figures 5.28 and 5.29, there is a strong relationship between the site's pre-Flavian samian and the AB02/03 wares. There is also a general fit between their distribution and that of the La Tène-decorated pottery. Based on this, the argument could be made that the use of the two overlapped and that locally the duration of the latter was longer than is normally accredited, perhaps continuing into the early decades of the first century AD. However, the fact that only six sherds of AB02/03 vessels were recovered from the North Enclosure (having itself a substantial La Tène assemblage) would refute this – surely so small an amount must be considered an incidental loss and not reflecting enclosure-usage *per se*. That 'Belgic' and La Tène Wares occurred at the Banjo, Enclosure 14 and RBI/Enclosure 5 must simply reflect that they each saw later and Late Iron Age occupation, with the latter being largely absent from the North Enclosure.

The site's Late Iron Age/Conquest Period 'markers' have been tabulated (Table 5.28). What is remarkable is that the tallies from the Banjo, RBI and Enclosure 14 are so similar. Although the latter lacked any Iron Age coins and Conquest Period brooches, that is probably simply because its 'catchment' was so much more limited. Although (apart from in the case of the Banjo) their specific amphora-type attributions are not definite, what is remarkable is that Dressel 1 amphora was present at each of these enclosures. As is evident in Figure 5.29, relative concentrations of *Terra Rubra* and *Nigra* also occurred at all three. Two points arise from this. First, the fact that so much occurred associated with RBI (and especially Enclosure 5), and where no kilns were found producing such wares (as opposed to those at the Banjo), must attest to the terrace community's use-consumption of this pottery and not just its production. The second point is based on the distribution within and around the enclosures of *Terra Rubra/Nigra*: at the Banjo it was primarily associated with the earlier Enclosure 11, rather than the later Enclosure 12 (see Fig. 4.69). This could indicate that this pottery was all of pre-Conquest date. However, this pottery was widely scattered throughout the axes of the ensuing Roman system, albeit in very limited numbers (see Fig. 5.29).

Its density was so low that it is difficult to determine whether it reflects preceding Iron Age activity or actual Early Roman use; for example, only six sherds were recovered from the well adjacent to The Plaza (Well 4; see Figs. 4.81 & 6.23) in comparison to its extraordinary *c.* 1100-piece samian assemblage. That only two sherds of Belgic AB03 were recovered from that feature would further argue against it originating as a Late Iron Age ritual shaft (see Chap. 4, *The Plaza*).

Discussion – *Connected Communities*

This chapter and the preceding Chapter Four are, without doubt, the most wanting of this volume's chapters. We will attempt to present some manner of period land-use sequence, but its archaeology deserved more than we (and the current state of the archive) were in a position to deliver. Some of its components have, over time, proven to be rather commonplace, with the ABC Enclosures being perhaps the most obvious example of this. Opposed to this, however, are its 'extraordinaries', with the clearest instances being The Plaza and the Belgic Banjo's developmental sequence. There is also the sheer number, density and variety of its roundhouses. Although the basic form of the North Enclosure is not particularly unusual, there is nothing comparable to its separate round structure (RH110) within its corner-enclosure, and the quality of its associated metalwork has few parallels. Indeed, given all this – plus Colchester's 'long shadow' – this makes the Joneses' 'underdeveloped' interpretation of the terrace's period-archaeology seem all the more remarkable. (But with so little comparable site context then available, whether immediate-landscape, regional or near-Continental, and operating year-round out of a caravan on a 'god-forsaken' terrace, it is entirely understandable.)

Aside from recognising The Plaza's complex for what it was, perhaps the most important contribution of the current programme has been the dismissal of the hiatuses that once bracketed the terrace's Middle Iron Age; in other words, the reinstatement of both its 'Early' and 'Late' phases. The loss of the Early Iron Age was largely the result of over-compensation following from the recognition of the scale of Mucking's Late Bronze Age and, particularly, the back-dating of the South Rings by Barrett.[21] Now, based on the MPX's pottery-archive drawings, the extent of the terrace's usage at that time can be appreciated. Admittedly, beyond the assignment of the very large – and arguably 'special' – Roundhouse 39 to that period, plus the tentative attribution of a number of both post-built and wall-trench roundhouses, we have done little to detail the character of its 'open-settlement' occupation. Nonetheless, now dovetailing better with the earlier, Linford Quarry findings and other subsequent Gateway-area results (see Champion, Chap. 6 below), there is no longer any grounds to postulate a settlement hiatus during the mid first millennium BC.

Like the site's Early Iron Age, the temporary 'loss' of Mucking's Late Iron Age was also (self-) project-inflicted. Whereas the Joneses consistently assigned the Banjo to that time (i.e. the *Belgic* Banjo), when faced with the archival sources there was almost no pottery attributed to that time. As already outlined, this flew in the face of the site's metalwork assemblage and was essentially due to the fact that its wheelmade wares had been analysed as part of the site's Early Roman assemblage.

As opposed to the preceding Iron Age phases, the terrace's Late Iron Age settlements appear to have been localised to the Banjo's linked compounds and RBI/Enclosure 5. Again, understanding the character of their domestic basis cannot be said to be fully realised. No buildings of that time were identified in the RBI/Enclosure 5-area (in part, surely due to its overly heavy quarry-stripping) and, in the case of the Banjo, the main buildings in Enclosure 9/11 – Roundhouses 63 and 67 – seem rather modest for the quality of metalwork found in the vicinity. What can be positively stated is that metalworking itself was associated with both, and there are strong grounds for linking the Banjo with The Plaza's square barrows.

As addressed in the preceding *Plottings* section, while the 'displacement' of Mucking's Late Iron Age was largely the result of project-specific circumstances, it is necessary to recognise that the apparent low/'non-recovery' of the period's 'Late' phase is relatively widespread throughout much of Essex. Based on a survey of the phase-frequency of the county's period-assigned building remains, Sealey has argued for a marked population decline during the Late Iron Age (2013 and forthcoming). Mucking's evidence could be read as supporting this interpretation, with the frequency of its 'later' brooches and La Tène-decorated pottery – as opposed to its seeming paucity of distinctly 'Late' types – initially suggesting a first-century BC *floruit*. Indeed, there is perhaps a wider lesson here in just how much effort it took to tease out the traces of the site's occupation in the first half of the first century AD.[22] Moreover, as will be explored in this section's final part, searching for parallels for Mucking's 'Late' usage and its connections throws up entirely new ways of evaluating the site's status and role.

Enclosure Models and 'Logics'

Largely taking an understanding of the period's roundhouse dynamics for granted (on the basis that

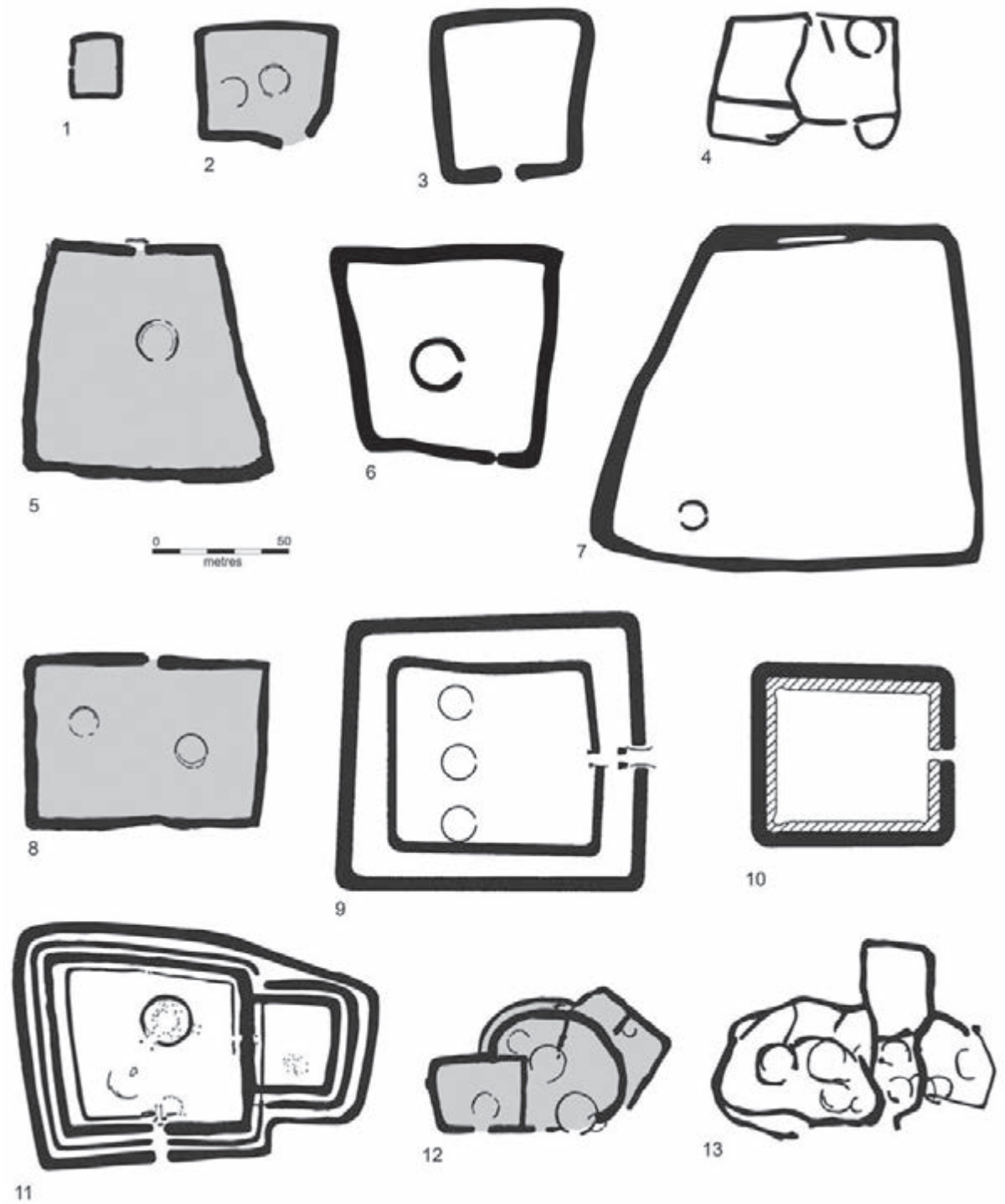


Figure 5.31. Comparative enclosures (with Mucking's grey-toned): 1) 1100 Enclosure; 2) ABC Enclosures, Enclosure 3; Gun Hill (Drury & Rodwell 1973, fig. 2); 4) Ardale School Site (Wilkinson 1988); 5) North Enclosure; 6) Werrington, Peterborough (Period I; Mackreth 1988); 7) Colchester/Camulodunum ('Cunobelin's Farmstead'; Crummy et al. *2007 and Creighton 2006, 132–3, figs. 3.3 & 7.2); 8) Mucking RBI; 9) Fison Way, Norfolk (Gregory 1991); 10) Thornham (Gregory & Gurney 1986); 11) Orsett 'Cock' (Carter 1998); 12) Belgic Banjo; 13) Hurst Lane, Ely (Evans* et al. *2007).*

Mucking is not the site to advance their depositional subtleties; see e.g. Parker Pearson 1996 and Sharples 2010, chap. 4), there are two levels of spatial organisation that need to be addressed. The first is that of its many enclosures and their developmental 'logic'. Almost harking back to Margaret's 'terrace-territories' arguments (see Chap. 3), the second involves the period's larger landscape-scale patterning. Following

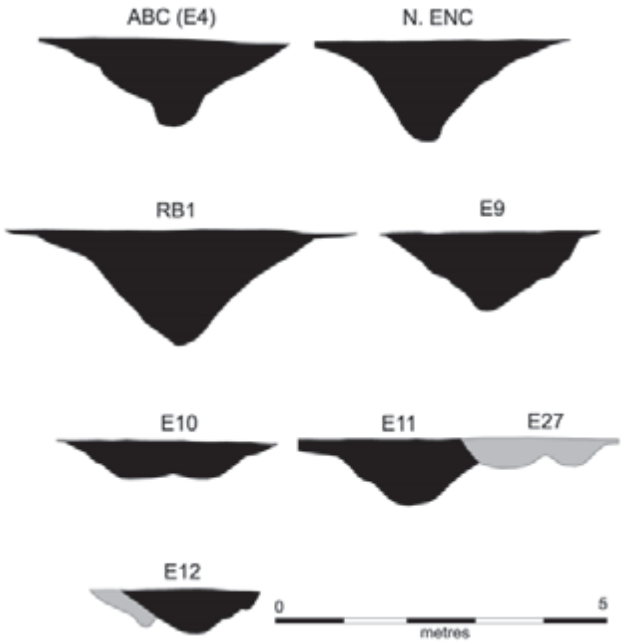


Figure 5.32. Mucking's enclosure ditch profiles (E9–12: 'Belgic Banjo' complex compounds).

a smaller-to-larger building block-approach, we will duly start with the first of these.

With its centrally set roundhouse, Number 16 (plus another such 'ancillary' structure on its western side: RH9), the spatial 'model' embodied within the main compound of the ABC Enclosures was relatively pristine (Fig. 5.31). Surprisingly enough, despite the cumulative complications of its long enclosure sequence, the same could also be said of the Banjo's early-phase arrangement (Stages I & II; Fig. 4.62). However awkward the lopsided-keyhole layout of its then-conjoined enclosures (Nos. 9 & 11), Roundhouse 63 sat centrally within Enclosure 9's 'square', as did Roundhouse 67 within Enclosure 11's half-circle. Indeed, the orientation of the two buildings – south/southeast (in contrast to the other structures' southeastern alignment) – essentially matched one another and, moreover, complemented the opening of Enclosure 11's circuit-arc.

The North Enclosure's developmental 'logic' was somewhat more complicated. Like the other such enclosure settings it started 'pristine', with its main roundhouse – Number 97 – located centrally within its trapezoidal compound. (Possibly indicating that it stood prior to its enclosure, that building actually lay just off-centre.) Thereafter, this central enclosure building-plot was cleared and its later-phase roundhouses – Numbers 89 and 110 – were instead set in the enclosure's opposing corners, where they were, respectively, 'fence-' and 'ditch-screened'. Leaving the central space free for other purposes (stock-sorting, *etc.*), this equally demonstrates the increased dominance of the enclosure itself as the predominant spatial framework over time (as opposed to the primacy of 'the house').

Certainly, the North Enclosure provides the site's firmest enclosure-chronology and, at least, its relatively early establishment date. Directly arising from its preceding 'open' Early Iron Age settlement – and, before that, Late Bronze Age – this 'plot' appears to have seen the site's longest direct chain of occupation (see Chap. 6, below). Of the enclosure-compound itself, Brudenell's pottery studies would correlate with the recovery of a La Tène leaf-bow brooch (see Haselgrove above, No. 1) from its main ditch and suggest a fourth-century BC foundation. Supported by the recovery of six 'later'-type brooches from the immediate area, and its lack of 'Late' wares – as opposed to its frequency of La Tène-decorated vessels – it appears to have been operational until the mid first century BC.

The sequence of the ABC Enclosures could perhaps be proposed as presenting a more generic development model of the terrace's Iron Age settlement, with its main enclosure (No. 4) preceded by smaller compounds and later superseded by 'open'/unenclosed, large robustly-gullied roundhouses (RHs 20 & 24; Fig. 4.38). Yet, the fact that Roundhouse 69 clearly stood prior to the Banjo's Enclosure 11 encircling-arc, or that Enclosure 10 there clearly truncated Roundhouse 51's 'big gully' building, might be posited as arguing against this. Countering this could be the Late Iron Age date of those latter enclosures. Nevertheless, there can be no doubt that, for example, at the Banjo Roundhouses 51 and 64 either preceded and/or were contemporary with the use of its original Middle Iron Age enclosure (No. 9; Fig. 4.59 & 4.62). Given its duration, there can be no doubt that the functional lifetime of the North Enclosure overlapped with that of a series of roundhouses to the north of it (see Fig. 4.48). Therefore, *there are no grounds for arguing a 'universal model of enclosure' in the case of the terrace's Middle Iron Age settlement*. Different times and immediate settings evidently gave rise to different reasons to keep 'things' in/out. Household enclosure did not mark some manner of world-view change, and the use of the site's unenclosed roundhouses was clearly concurrent with its 'compounded' occupations. What does need restating is that the unenclosed buildings of that date tended to have much larger eavesgullies and that generally these were less substantial when buildings lay within enclosed space. (The only real exception to this being the North Enclosure's RH97, but in that case it has been argued that the building stood prior to the layout of that enclosure.)

The site's main Middle Iron Age compounds – the ABC's Enclosure 4, RBI, the Banjo's Enclosure 9 and the North Enclosure – were all heavily ditched (Fig.

5.32) and had sub-square/-rectangular plans. As such, and with exemplars shown on Figure 5.31, within the region there are many comparisons, with Gun Hill providing the nearest obvious parallel (Drury & Rodwell 1973; see also Ingle & Saunders 2011, 81–7, fig. 3.21 and Priddy & Buckley 1987). While the two smaller enclosures – the ABC's Enclosure 4 and the Banjo's Enclosure 9 – both lying along the site's western side, had eastward-facing entrances, the two larger enclosures opened westward (RBI and the North Enclosure; see below).

It is much more difficult to find any ready comparisons for Mucking's Late Iron Age compounds. Simply too little was excavated of RBI's sub-enclosure, Number 5, to discuss its layout with any confidence (see Fig. 4.41). If, as has been postulated, the main RBI enclosure was re-established in the Conquest Period, then it may have been similar to Orsett Cock's main compound. Incorporating a seemingly Late Iron Age, original square (single-circuit) compound along its northern side, that enclosure's triple-concentric circuit plan – with a palisade set around its interior – was thought to reflect a defensive function during the mid first century AD (Carter 1998; see Howell *et al*. 2011, 59, 63–5, figs. 50, 51 & 55 for the phased development of a comparable triple-circuit 'square' at Moor Hall Farm). On the other hand, and as already emphasised above, it seems impossible to find a direct comparison for the incredible elaboration of the Banjo's complex. Certainly it was ill-served by its naming, as it was clearly not a banjo-type enclosure and any resemblance to one was simply a by-product of conjoining square and half-circular components (Enclosures 9 & 11); it being this that led to its distinct, lopsided keyhole-plan. Despite the apparent uniqueness of the complex's overall plan, portions of it find resonance elsewhere, the ladder-like arrangements of its three linked, rectangular compounds (Enclosures 10, 21 & 22) being relatively commonplace (Enclosure's 29's potential Early Roman 'fold' being reminiscent of a Middle Iron Age arrangement at Ardleigh; Brown 1999, 26–30 & 177–8). Yet, Enclosure 11's half-circle would be without parallel, let alone its partial concentric 're-ringing' with Enclosure 12's southwestern-aspect circuit. Also shown on Figure 5.31 (No. 13), the only known enclosure-configuration that would come vaguely close – including 'spoked' internal ditch-partitions – would be a series of interlinked later Iron Age compounds at Hurst Lane on the Isle of Ely (Evans *et al*. 2007; see also Booth *et al*. 2011, 259, fig. 5.10 concerning the concentric-circuit Middle Iron Age enclosure at Beechbrook Wood, Kent).

Circular enclosure-components had, of course, a currency throughout the Iron Age. It still may be relevant that recent large-scale excavations at Colne Fen, Cambs. documented a basic shift in Middle/later and 'Late' enclosure forms: the former being of sub-square layout (there, Scored Ware-associated and having very few wheelmade wares). The latter enclosures, of late first-century BC and early first-century AD date, had a far higher frequency of wheelmade pottery (plus coins and brooches) and were of more irregular/organic 'design' (Evans *et al.* 2013a).

Landscape Divides and the Lie of Land

Only towards the end of this book's writing was it recognised that there was a larger scale 'framing' of the terrace's later prehistoric settlement. It had earlier been appreciated that Late Bronze/Early Iron Age settlement extended throughout the site's northern quarter, where there was subsequently no later Iron Age and Romano-British occupation. In the case of the former, the distribution of its hallmark eavesgully-surrounded roundhouses was clearly confined by the northernmost cross-terrace Iron Age boundary (IA9; RH106 aside), set hard against which was Enclosure 18/19 and its interior roundhouses (Nos. 104 & 105; see Figs. 4.48 & 4.51). What was not appreciated until late in the day – really only upon the assembly of Figure 6.15's 'Greater Mucking' illustration and its inclusion of Barford's rendering of the Linford Quarry plan – was that the same was also true of the southern side of the site. Although we were aware that Early Iron Age occupation clearly continued across the area of Barton's previous excavations, its negative evidence had not been fully appreciated: no Middle (or Late) Iron Age settlement occurred there. This, accordingly, made us reconsider the status of the variously dated BAD1 boundary along the southern side of the site, against which the ABC's Enclosure 1 had been tightly laid-out (see Figs. 4.38 & 5.33). Regardless of whether that ditch-line dated to the Iron Age or the Bronze Age – if the latter, then subsequently maintained (?by hedging) – it appears to have had an equivalent status to the IA9 line in the north and to have bounded the area of Middle/Late Iron Age settlement in that direction (with Romano-British ditches extending south throughout Linford's exposure). Although definite for Mucking's northern quarter, this interpretation should be tempered by the fact that Linford's exposure to the south was, perhaps, too small to be absolutely assured of this patterning. Nevertheless, such large-scale division seems extraordinary and could, in part, account for the apparent packing of Mucking's variously gullied roundhouses between these boundaries. It further evokes the question of 'terrace-territories' that was raised by Margaret Jones in relationship to the Late Bronze Age Rings (north and south 'zones'; see Chap. 3) and is an issue that will be returned in the final chapter.

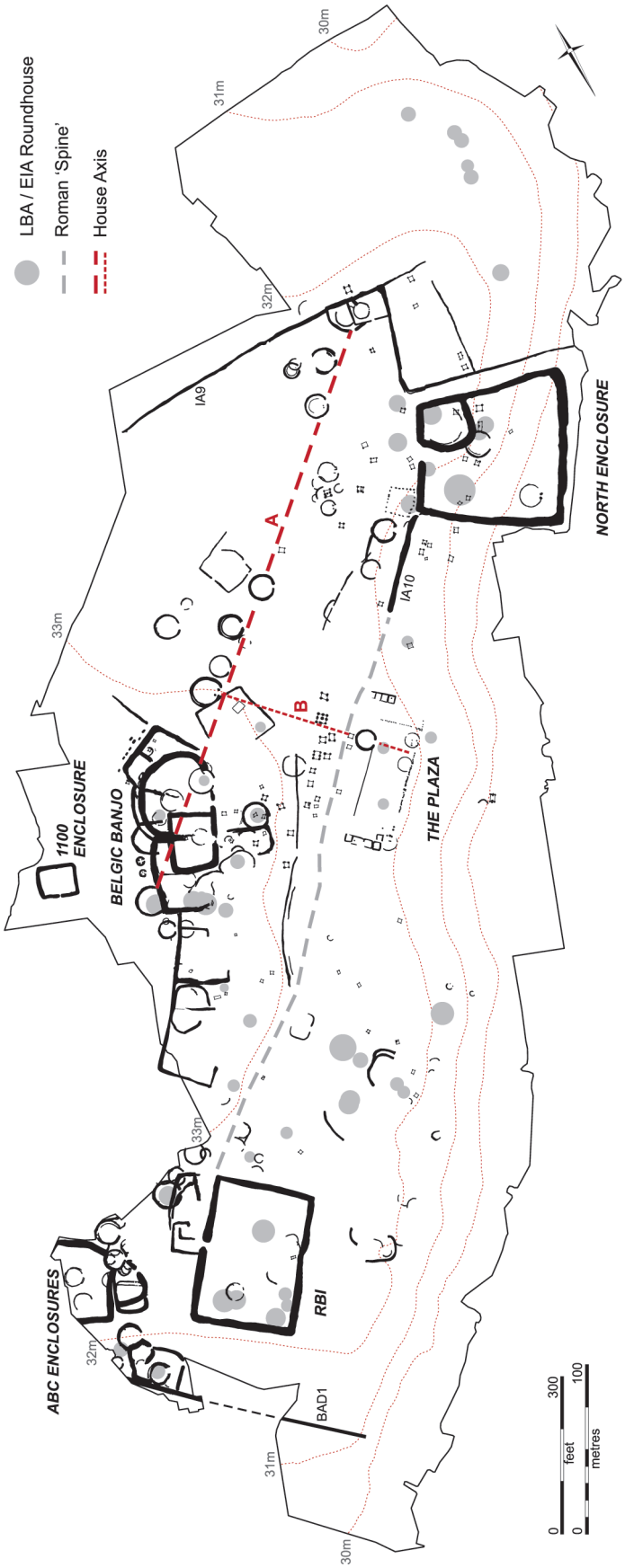


Figure 5.33. Iron Age landscape, showing roundhouse distribution (and 'axes') in relationship to boundary system and terrace contours.

When attempting to fathom any patterning that might lie behind the distribution of the site's roundhouses, the negative bias created by the southern end's swathes of over-machining must be borne in mind. Clustering is nonetheless apparent, with those in the vicinity of the ABC/Enclosure 5 and Banjo Enclosures being the most obvious. The enclosure boundaries enhance this sense of distributional foci and for our purposes here it is worth, if not stripping them off, then at least 'conceptually' backgrounding them (Fig. 5.33). Axial arrangements suggest themselves. By far the most striking is that which runs for some 380m from Roundhouses 50/51 northeast to Roundhouses 104/105 (Axis A), and which includes the very marked arrangement of Roundhouses 79–82 and 85. Another axis could be suggested in the site's mid-field involving Roundhouses 68, 73, 77 and 79 (plus possibly No. 70; Axis B). Oriented southeast–northwest, it would run at right-angles to Axis A and, together, they seem to have determined the orientation of The Plaza (i.e. parallel with Axis A).

More minor lengths could also be distinguished. This would include one in the site's southwest, encompassing Roundhouse 1 at its southern end and continuing north to Roundhouse 24. Although somewhat more tenuous, another might seen as extending over 275m across the site's southern third, from Roundhouse 16 to Number 40, oriented more due east–west.

The main determinant of Axis A would seem to relate to the immediate lie of the land: the local terrace's crest and its northwestern 'pull' towards the end of the peninsular. Against this, the more due eastward alignment of Roundhouses 16/40 could well relate to a more generic cardinal system for the period as reflected in the predominately eastern-sector orientations of its houses. There would be something of a discrepancy in this: whereas Axis A almost exclusively included ''Middle/later'-period buildings, its eastern half largely consisted of Early Iron Age roundhouses. It includes the wall-trench roundhouses (Nos. 39, 40 & 112/113), whose doorways instead opened southwards. (The more north–south alignment of 'early' post-circle roundhouses within the site's north end [Fig. 4.24] – putatively of Late Bronze Age date – could also be considered another such axis. If so, given this dating, this could present something of a juxtaposition with the northwest–southeast entrance-access/-axis of the South Rings.)

Such linear arrangements of Iron Age roundhouses have been recovered elsewhere (e.g. Gravelly Guy: Lambrick & Allen 2004; Hunt's Hill Farm, Upminster: Howell *et al*. 2011, 44–7, fig. 35). Mucking's main axes also incorporated the main buildings within both the Banjo (RHs 67 & 69) and the ABC's Enclosure 4 (RH16). This suggests that *these buildings may have actually determined the locations of their respective enclosures*. The Banjo's Roundhouse 69 clearly pre-dated the layout of Enclosure 11's arc, and the same could even be true of Enclosure 4's Roundhouse 16. The latter enclosure's northeast-corner entranceway complemented that of its central house and was, in fact, itself also aligned on the putative axis running eastward to Roundhouse 40. Conversely, the houses within the other main enclosures, RBI and the North Enclosure – which, as mentioned, were themselves oppositionally oriented towards the western 'inland' side – were not part of this house-axial system.[23]

It is imperative that we attempt to gauge the density of the terrace's Iron Age usage, especially that of its Middle Iron Age households. Although it is unlikely that the ABC's Enclosure 4 compound functioned simultaneously with the RBI Enclosure (with the latter presumably superseding the former), there would still have only been a *c.* 200m interval between its main enclosures. As outlined in the Chapter Four, although this does imply that they were closely set, this is not of an entirely different landscape-density than the *c.* 300–500m later prehistoric settlement 'stand-off' now widely found elsewhere in areas of southern England (Evans *et al*. 2008).

What of the distribution of the site's 'open' or non-compound enclosed roundhouses of the period? Obviously not all were contemporary. Nevertheless, within the aforementioned clusters (ABC/Enclosure 5 and the Banjo area) and their attendant house-line axes, they seem densely set; for example, along Axis A the interval between roundhouses was generally only *c.* 20–40m (Fig. 5.33). Though their density would generally be far lower than, for instance, that of Little Waltham's main enclosed-phase settlement (Drury 1978b), locally it would be close to that of the ditched 'hamlet-scale' setting of seven roundhouses at St Osyth, Essex (Germany 2007, 43–58, figs. 30–3). In Waltham's report Drury did, in fact, state that locally Mucking's building densities (in this case, the Banjo complex) were similar to those of his site's Period II layout:

> It is to a gravel terrace site, at Mucking on the Thames, that one must turn for a local parallel to the open settlement. The basic difference between the two sites, at the period under discussion, seems to be that *on the flat open heath of Mucking there was less incentive towards close grouping than at Waltham, where it is possible that much initial clearing was necessary*. Indeed, the observed relatively lavish use of timber in the group A huts may reflect this. However, a group of more than 15 huts 'centred on 1150N × 250E' (Jones 1974, fig. 3) is reminiscent of the unenclosed Period II settlement, although their relationships to the relatively small enclosure in the same area will only be clear when the site has been fully published (1978b, 125, emphasis added; see Framework Archaeology 2006, 171, fig. 4.6 on the quasi-nucleated clustering of Heathrow/Perry Oaks' Middle Iron Age roundhouses).

Admittedly falling short of what could be considered nucleated settlement levels, for want of another term – and in relationship to their apparent confinement by ditch boundaries – we will refer to Mucking's gullied roundhouse distribution as a 'zoned settlement swathe'.

Almost all of Mucking's Middle/later Iron Age houses lay upon the flat top of the terrace and above *c.* 31.5m OD. With the exception of the North Enclosure's Roundhouse 89, they were not located along the terrace's eastern slope (Fig. 5.33). This is also true of the period's enclosures, with only the North Enclosure extending down the eastern contours; the others all effectively lay on the terrace's 'top-lands'. As further discussed below in relationship to the settlement's fields, the projected line of the IA10 ditch – 'completed' in Early Roman times southwestward to the corner of the RBI Enclosure – appears to have marked a significant landscape-structuring divide, with 'open' settlement to its west and primarily enclosed occupation to its east. Not only would this 'inside/outside' division go some way to explain the heavy ditching of both RBI and the North Enclosure (i.e. both 'outside'), but it would also account for their westward entranceways; in contrast, lying 'inside', the Banjo's compounds were not themselves completely ditch-enclosed and they opened eastward. (Almost as if flipping in relationship to the IA10 *et al*. boundary, the bulk of the subsequent Roman system was more akin to the North Enclosure's location and largely fell on the eastern slope. Presumably this was largely to facilitate surface drainage; however, given the location of The Plaza and Cemetery V, this 'reappraisal' of the eastern terrace land may have actually have been underway by the Late Iron Age.)

Immediate (micro-) topography seems to have been a major factor determining the organisation of the Iron Age settlement(s). Close scrutiny indicates that, at the site's northern end, the orientation of the IA9 boundary closely followed that of the 32m OD contour and the northwestern side of the 'terrace-peninsula'; just as, in the south, that same contour apparently influenced the alignment of the BAD1 boundary and against which the southern ABC compounds stood (Fig. 5.33).

It should be stressed that there was no evidence of there having been an Iron Age ditched fieldsystem *per se*. Indeed, evidence of such is still generally rare within the region. Based on precedent, St Osyth's Period VI.1 layout would have to be considered somewhat suspect, with a mid–later Bronze Age date being more likely (Germany 2007, 43, fig. 29); that site's subsequent enclosed settlement and trackway-organised landscape would be far more typical (Period VI.2: *ibid*., 43–58, figs. 30 & 32). Indeed, Mucking's north-end arrangement – IA7/9 boundaries and the droveway alongside the North Enclosure – would seem broadly comparable. Yet, the larger-scale organisation of the site's main cross-terrace boundaries – the *c.* 650m-long 'house-packed' swathe between Ditches IA9 and BAD1's line – would have few direct parallels (see, though, e.g. Lambrick & Robinson 2009, 66–70, figs. 3.9–10). Certainly of Middle Iron Age date (though possibly dating back to the 'later' Early Iron Age based on the fact that no wall-trench buildings of that time apparently occurred beyond their confines), perhaps this is just a matter of how relatively limited most site exposures still are by comparison. It may, in fact, reflect the site's specific location on a raised terrace above marshland. In this regard, Mucking's period-landscape organisation seems, if anything, more akin to that of 'edged' landscapes elsewhere: variously river valleys and fenlands (see e.g. Miles *et al*. 2007, chap. 3; Evans *et al*. 2013a, chap. 5). This is not such a far-fetched comparison as it might at first seem, as they would have shared a similar complementary determination as regards access to resources. In other words, drawing upon 'low' floodplain/marshland resources while still dwelling 'high' (and 'dry') within their immediate landscapes.

As mentioned in Drury's passage quoted above, the site's long-term dense-settlement history could well have contributed to this. As opposed to other areas of the region with heavy clayland geologies, Mucking's terrace would have largely been cleared of woodland by the earlier Bronze Age and its barrow-field landscape. The subsequent fieldsystem, and then its extensive Late Bronze/Early Iron Age settlement spreads, must attest to the fact that it was maintained as open land over the next millennium. In short, no specific local environmental factors would have prompted Middle Iron settlement nucleation in that location. Instead, the crucial issue in terms of environmental sequence for the terrace is surely the clearance history of its surrounding heavier soils, as this would have determined the scale of the community's fields and, thereby, its population capacity (see Wilkinson 1988 concerning the wider environmental history of the site environs).

Settlement Resourcing and Status

The site's Early Iron Age is amongst the most diffuse of its occupation horizons, lacking any manner of major focus comparable to the preceding South Rings or the subsequent Middle Iron Age enclosures. It certainly warrants much fuller study in the future and key themes have already been suggested: for example, is the concentration of haematite wares within the vicinity of the later North Enclosure a matter of chronology or does it reflect emergent status? While we have been able to attribute to it a range of distinctly large, wall-trench buildings

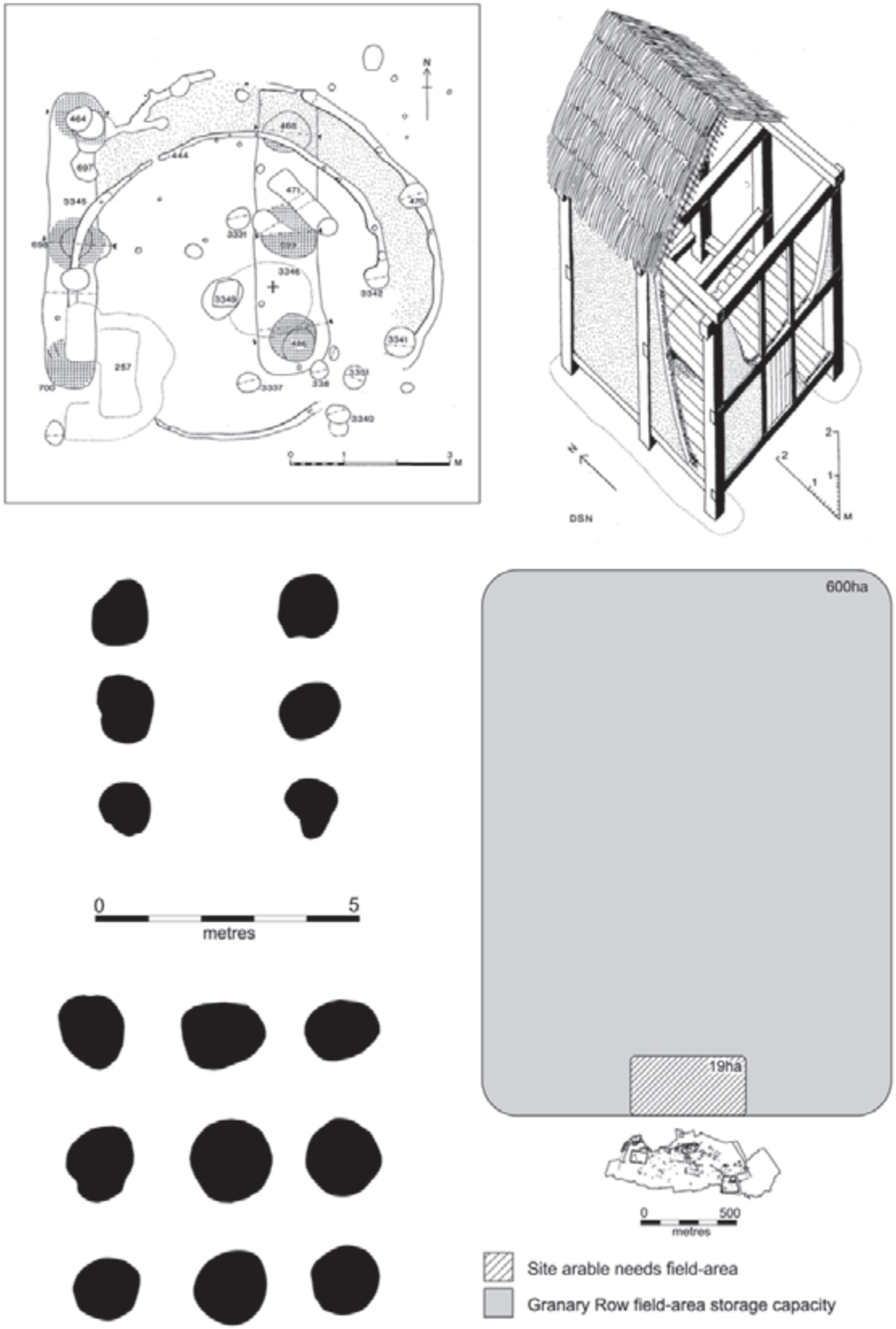


Figure 5.34. Grain-storage capacities: top, Gorhambury, plan of Buildings 5 and 6 (left) and, right, reconstruction of Building 5's six-poster (cf. Fig. 4.14; Neal et al. *1990, figs. 28 & 31); below, Mucking's Posters 50 and 56 (left; shown to same scale as Gorhambury's plan) and, right, schematic model of the site's arable needs (10 families) and Granary Row's storage capacity field-areas.*

(as well as a series of probably post-circle house settings and accompanying 'posters'), the period remains unnuanced. However, we have been able to appreciate its very existence and scale. Far from being a period of hiatus, its dispersed settlement evidence now seems akin to that found elsewhere (e.g. Lambrick & Robinson 2009, 94–9) and broadly comparable to that of both the site's Late Bronze Age and, even, its Middle Iron Age. Indeed, there is every reason to think that the terrace saw direct continuity of land-use – probably with a gradual build-up of population – over that span; it is now only during the Late Iron Age when a decline in numbers might be evident.[24]

In a number of instances, gullied Middle Iron Age roundhouses appeared to have been direct rebuildings of earlier post-circle structures reinforcing this suggestion of continuity (Fig. 4.24). So many of these 'Early'-type buildings also concentrated within the area of the later North Enclosure and where so much of the site's Early Iron Age pottery occurred (Figs. 4.6 & 4.48); the even longer term continuity at that specific locale was attested by the quantity of Late Bronze Age wares there (see Fig. 3.3).

Continuity is not evident throughout, however. This particularly concerns the area where the main 'Early'-attributed wall-trench roundhouses (RHs 39, 40 & 112/113) – with their differently oriented south-sector doorways – were located. Lying north of the South Rings (and south of the later Double Ditch Enclosure), this saw no substantial Middle Iron Age settlement and nor were those roundhouses then directly rebuilt (this also being true of RHs 22 & 91 of the same building category-type).

In order to address this apparent 'area avoidance', we first need to outline what we can of the economy of the site's 'Middle' and 'Late' settlements (which, thereafter, leads to a discussion of their status). Although dominated by cattle, the two animal bone sub-site assemblages that are available offer no real insights into the local economy due to poor preservation. Indeed, given the scale of their respective pottery assemblages, it would have to be suspected that only *c.* 5–15% or less of their total animal bone (deriving from cut features) survived. Given these factors, it is likely that sheep are, thereby, grossly under-represented.

The recent Stanford Wharf excavations unfortunately failed to elucidate this, as very little Iron Age-attributed bone was there recovered (Strid in Biddulph 2012, digital archive). Where Oxford Archaeology's fieldwork does, however, provide insights is in the demonstration of Iron Age salt-making. Apparently of Middle Iron Age date (*ibid*., Chap. 4), it is probable that some of the briquetage recovered from the North Enclosure was contemporary (i.e. non-residual; see Fig. 3.2). Equally, it is argued in the Roman volume that the Banjo's Early Roman graffiti wares were associated with the salt trade. Accordingly, it is likely that throughout the Iron Age the terrace's inhabitants participated in salt-making. Surely undertaken as a seasonal, summer-time activity (*ibid*., 82), it is reasonable to presume that the neighbouring lowland marshes were then also utilised for seasonal pasture. This does not amount to seeing the terrace's inhabitants as fully transhumant shepherds (*contra* the Joneses) and *there is unassailable evidence of Mucking's mixed arable/pastoral economic basis*. Leaving aside its quernstones, this is most clearly manifested in the number and size of its raised 'poster' granaries, particularly the extraordinary Granary Row array. Akin to the level of grain-storage capacity (and 'display') usually only witnessed in the period's hillforts,[25] it is the scale of Mucking's arable production that primarily characterises its period-usage. Unfortunately, we cannot be certain of the location of its fields; they are, though, understood to have lain both on the terrace-lands themselves and probably on the ground behind/west of it (see Fig. 5.35). In this regard – and in relationship to the above-cited 'area avoidance' issue – the location of contemporary fields might provide an explanation for why there seems to be so little 'Middle/later'-period occupation along the eastern part of the top of the terrace. This is, of course, aside from the RBI and North Enclosures, and might further account for their heavily ditched boundaries (Fig. 5.32). While perceived defensive capability may have played a role, more pragmatically, so too might simply have been a need to keep out winter-pasturing livestock.

Of the other activities attested to, there is the evidence of textile manufacture so characteristic of the period. Indeed, if nothing else, the scale of the site's loomweight assemblage further highlights the degree to which sheep are 'missing' amongst its poorly preserved animal bones. There is also the suggestion of pottery production associated with the Banjo. Yet, perhaps most significant in this capacity is the scale of metalworking. The evidence indicates that both iron and copper alloy were worked at the Banjo, RBI/Enclosure 5 and the North Enclosure complexes. Arguably relating to the latter, particularly noteworthy was the metalworking associated with Enclosure 18/19 and, especially, its Roundhouse 104. Perhaps it was a specialised household/workshop, one which could have been directly linked to the North Enclosure's leading family (see e.g. Giles 2007 and Sharples 2010, 137–8 on the social context of metalworking). Equally, amongst the site's most extraordinary finds was a mould showing trace elements of silver and gold, as well as copper, lead and zinc (No. 36). It was found within the vicinity of Roundhouses 6–8, within the interior of RBI. While,

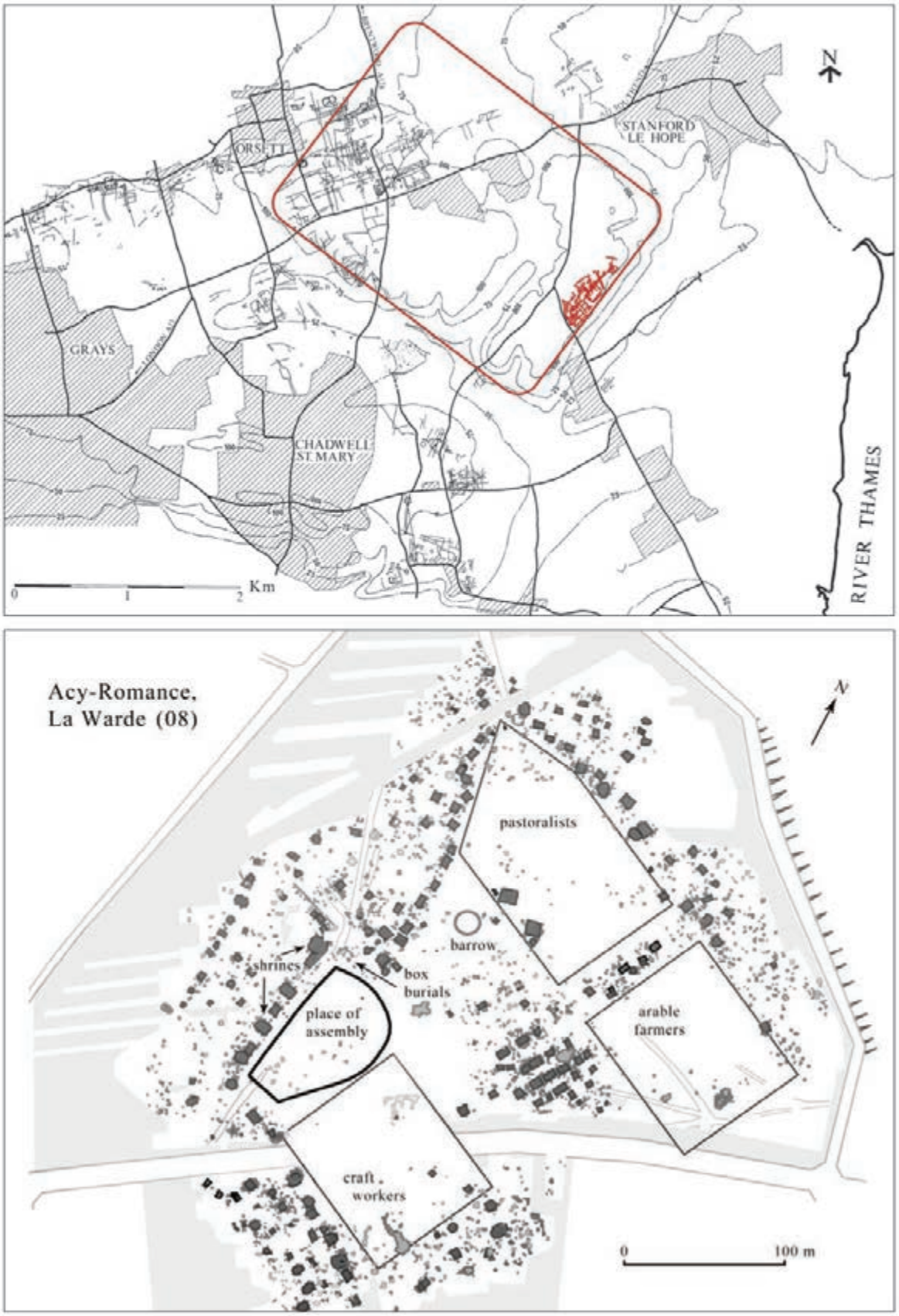


Figure 5.35. Mucking's c. 600ha arable 'catchment-footprint' projected upon its hinterland (top); bottom, Acy-Romance's plan (after Haselgrove 2007, fig. 6).

some doubt of its exact chronological attribution must remain, the possibility that precious metals were then being worked on the site is certainly intriguing.[26]

As opposed to the more direct measures of burial evidence, it is almost always far more difficult to read the status of domestic structures. In the case of the site's Early Iron Age Roundhouse 39, its relative size could suggest that it was somehow 'special' within the local landscape. Whether that was due to the status of its residents or a distinct function cannot be ascertained.[27] In some respects, the same question also arises in relationship to the North Enclosure's Roundhouse 110. Its plan is so seemingly different that it is impossible to determine if it related to an 'elevated' residence or if it had another function altogether (i.e. communal gathering); both of these interpretations could be furthered by Brudenell's observation that its enclosure's pottery assemblage attests to high levels of food consumption/serving and the display/deposition of fineware bowls. Certainly, when compared to the area's 'open-settlement' buildings, *there are compelling grounds to consider the North Enclosure as a high status residence*. Not only would this relate to the activities that it apparently hosted (stock-sorting, metalworking and possibly salt production), but also to the metalwork finds associated with it and that no other rural settlement enclosure within the region has yielded material of such quality.

The North Enclosure's occupation evidently did not continue into the first century AD and, accordingly, there is a temptation to see the Banjo complex as superseding it as the local seat of authority and power, directly linking it to Granary Row and The Plaza's square barrows. While the number of coins and brooches recovered from the area of the Banjo could support this, none of its houses seem particularly distinguished. Whatever can be known of Mucking's landscape, it does seem reasonable to link the Banjo and The Plaza, and together see them as a local expression of Late Iron Age authority. (It could always be argued that, based on these same measures, RBI/Enclosure 5 was an equivalent representation of Late Iron Age status, it simply being that much more difficult to appreciate its findings due to the severe machining within that area.)

By its scale and careful excavation, the Gorhambury Villa site provides a useful comparison from eastern England of what might be expected of a 'higher social class' Late Iron Age farmstead, with 1256 Belgic vessel rims, 14 British coins and 30 pre-Conquest brooches recovered (Neal *et al*. 1990; see also Fig. 1.7 concerning Dragonby's 'vital statistics'). Its ditch-enclosed interior space was relatively sparsely occupied (*ibid*., fig. 26). Even then, and as admitted by its author-excavators, the attribution of its two sleeper-beam building ranges to this period (Buildings 8 & 9) – as opposed to the early years of the Roman – is questionable. That is equally true of its aisled barn and raised granary constructed from trench-set split trunks (Nos. 15 & 10 respectively; *ibid*., 27–32). Otherwise, its buildings consisted of two roundhouses and a series of relatively modest sub-ovoid 'sheds', variously akin to those at Skeleton Green and Park Street, St Albans (Partridge 1981; O'Neil 1945). Admittedly, the attribution of Gorhambury's Building 9's hall-like range to the Late Iron Age might now, perhaps, gain greater credence in the light of the recent findings at Silchester (Fulford *et al*. 2013) and, if of that date, its scale would certainly change the perspective upon that site's pre-Roman occupation. Not only does there appear to be a wide variety in the period's ascribed building types, but their accompanying feature density often seems very low. This goes far to explain why it can be so difficult to recover Late Iron Age settlement, and may account for why ritual explanations have come to so dominate its interpretation (e.g. Byrant & Niblett 1997).

Equally significant in relationship to Mucking is Gorhambury's Late Iron Age six-poster granary (Building 5; Neal *et al*. 1990, 25–6). As shown on Figure 5.34, it was superseded by a cob wall-built roundhouse. Also included in that figure is its reconstruction drawing. Shown two storeys high and estimated to have a storage capacity of 106.7cu.m (see Ramsey in *ibid*., Appendix 2), it is certainly very grandiose when set against Mucking's decaying hovel-like granary rendering (Fig. 4.14) Yet, when comparing its plan to Mucking's large granaries, Gorhambury's was no larger nor any more robust than, for example, PS50. If Gorhambury's single raised-granary could have provided the grain-storage needs for an elite residence, then what does this say about Mucking's Granary Row array? Surely they attest to something more than just the site's immediate domestic needs.

The estimated storage figures for Gorhambury's granary seem astronomically high. For our purposes, we will simply assume that the *c.* 158sqm covered by Mucking's Granary Row settings represents the same in their cubic capacity; in each case, the raised structure proper is understood to have only been approximately a metre high. We are, in other words, being as conservative as possible in our calculations, and if we were instead to apply the same factoring as Gorhambury's this would massively increase all of the figures presented below.

Based on Mucking's 158cu.m Granary Row storage-capacity estimate, and using Ramsey's seed-storage/land-area catering figures, this would then represent *c.* 2225 acres (or some 900ha-worth) of two-rowed barley or wheat grown on medium-quality land. If we say that at any one time a third of the storage-area was given to seed-corn, then Granary Row would reflect some 600ha of *arable production land* (i.e.

this does not amount to a total site catchment-area figure as it obviously excludes pasture and woodlots, *etc.*; Fig. 5.34). If now applying the population-to-arable-yield figures that Chris Stevens employed for Haddenham (in Evans & Hodder 2006b, 313–5), with *c.* 1.9ha of arable supplying the annual needs for an extended family of 15, this would mean that Mucking's storage facilities could have supported some 315 such families. If we cannot be certain that all of Granary Row's settings were directly contemporary and operational at the same time, we then could halve or even cut this figure by up to two-thirds, and say 150 or 100 large families-worth. Even given this severe reduction, this still represents vast storage in relationship to the some four to 10 families that might have been resident on the site during the later/Late Iron Age. Equally, nor could they have provided the requisite labour to generate such crop returns and, therefore, *Mucking's granaries must attest to centralised storage.*

In Figure 5.35 Mucking's 600ha 'arable-footprint' is projected upon the site's hinterland. We do not for a moment believe that this regular plot-shape would in anyway have approximated the reality of the fields' extent. That is not the point here, but rather that *this scale of production could not have occurred within the landscape without directly impacting upon neighbouring settlements*. As shown, the catchment overlaps with known sites near Orsett (see Chap. 6 concerning its various cropmark components), but surely it would have involved a number of other settlements, and crops must have been brought in – by whatever socio-political means – by or from other communities.

The possibility of the site's cross-channel grain export is discussed below. Before progressing, however, there is a final point that needs addressing: that is whether Granary Row's posters actually related to grain storage. It might seem absurd to raise this so far into the book, but it relates to what follows, as in the next section the affinities between Mucking's square barrows and northern French cemeteries of the period will be explored, with a direct cross-channel connection established. Both these cemeteries, as well as broadly contemporary settlements and/or sanctuaries such as at Nanteuil-sur-Aisne or Acy-Romance (Fig. 5.35; e.g. Lambot & Méniel 1992 and Lambot 1999; see papers in Verger [ed.] 2000 and, also, Haselgrove 2007, 497–502, & 507), involved various poster settings that are certainly similar to Granary Row's posters, but are held to be mortuary structures (see Bradley 2005, 177–8 on the ambiguous distinction of Acy-Romance's ritual and domestic contexts/structures). Indeed, in the preceding chapter the possibility of the latter's mortuary 'resonance' was alluded to. Therefore, whether Mucking's Plaza-related posters might also have been of a comparable ritual function is a question that warrants airing. Unfortunately, there is no hard evidence that can be brought to bear, given the paucity of the site's environmental sampling; but then nor are there any compelling grounds to advocate their direct mortuary function (Granary Row's adjacent cremations arguably relating to the larger Plaza's arrangement). In the end, having duly entertained this possibility, it is here dismissed. This is primarily based on the paucity of Mucking's Continental imports and that, had the Plaza's entire arrangement been derived from French prototypes, 'more' should have been expected (i.e. it cannot have been any kind of imported 'complete colonial package'). Also, it is simply the fact that, as outlined in Chapter Four, the St Osyth's settlement – for which there is no basis to posit a cross-channel connection nor any 'special' function – included equally robust six- and nine-posters (though generally grouped in small clusters and not aligned at length as at Mucking's Plaza; Germany 2007, 54–8, figs. 30, 33 & 40). Given the principles of Occam's razor, if such quasi-monumental posters had a domestic arable-produce function there, then surely it is logical that this was also the case at Mucking.

Later Iron Age Ceremonial/Household Architectures and Funerary Practices

With possible sill-beam 'halls', roundhouses and sub-rectangular/ovoid 'sheds', Gorhambury testifies to just how little consistency there is concerning Late Iron Age house architecture. As indicated on Figure 5.36, the same is true of Mucking. The rounded-corner gully setting of Enclosure 14 and Structure 6's smaller post-trench rectangle contrast with its 'Late' roundhouses and seem anomalous. This is to the point that it has been questioned whether they may actually have been square barrows or shrines; in other words, something extraordinary. The site's arguably 'Late' roundhouses also display considerable variability, ranging from Roundhouse 67 and 70's ('signature') eavesgully buildings with elongated porches, to Roundhouse 68 and 73's wall-trench builds. The issue remains whether this is all there was of the site's earlier/mid-first century AD buildings.[28] Given the nature of the site's machine-stripping, it is unlikely that sill-beam structures would have been detected (as discussed in Chap. 6, this is also a problem plaguing its Roman archaeology). What, though, of possible posthole (-only) structures?

Here, once more, we are immediately confronted with the problem of Mucking's myriad 'uncertain' postholes (see e.g. Figs. 1.19 & 4.59). To be frank, in areas of the site there are so many that you could almost construe whatever you wished out of them. Indeed, based on the form of Heybridge's 'Late' buildings (Atkinson & Preston 1998, 94, fig. 5), some

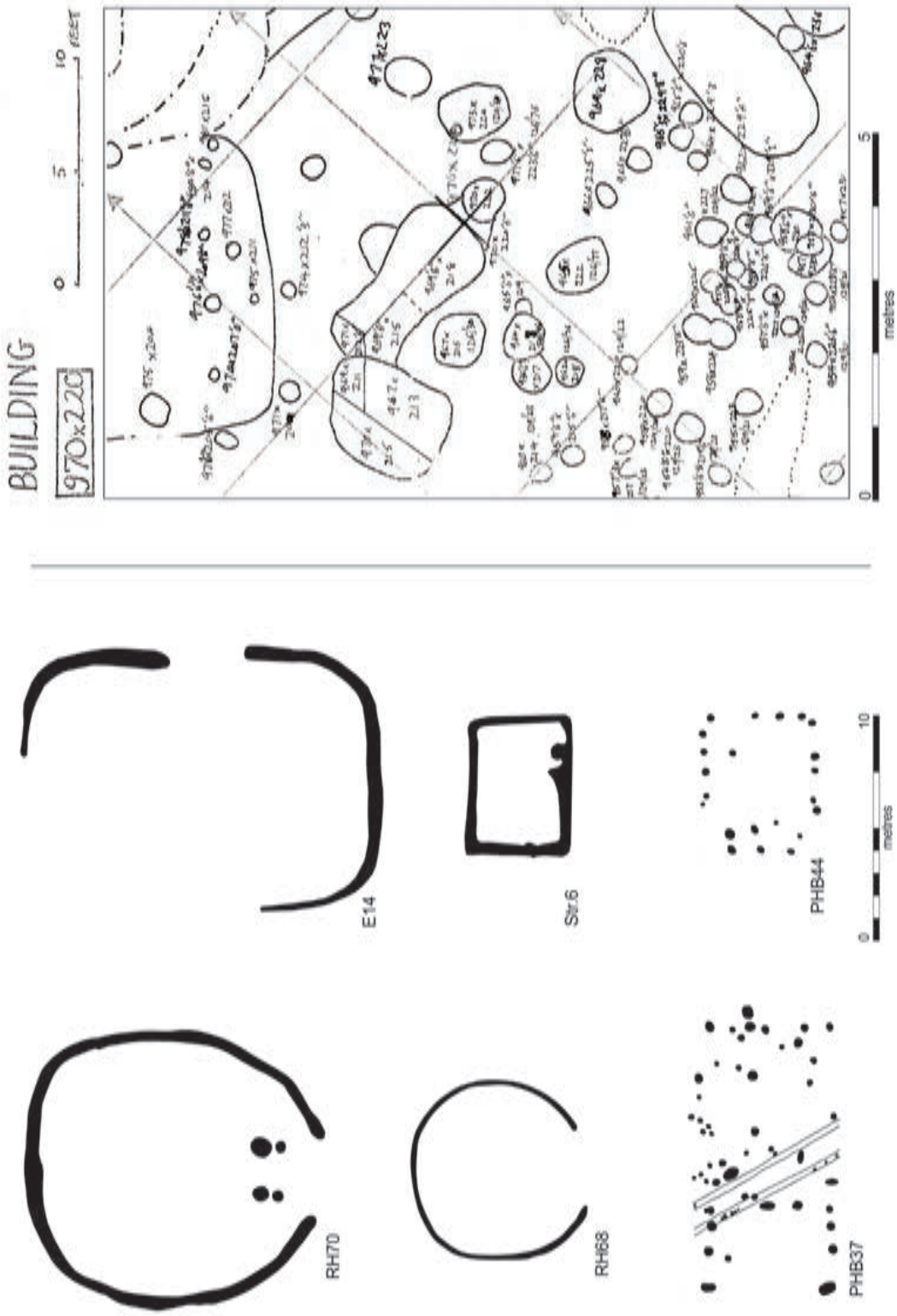


Figure 5.36. Late Iron Age structures, with 970N × 220E setting and 'irregular' Anglo-Saxon PHBs 37 and 44 added for comparative purposes (from Posthole Buildings archive files).

Figure 5.37. Potential rectilinear structures (Enclosures 12/13-area, Atlas Sheet 13).

of the post-circle settings here identified as possible Late Bronze/Early Iron Age roundhouse locations (see Fig. 4.24) could even conceivably be Late Iron Age. Given Mucking's locally very dense posthole distributions, as well as the quantities of its various 'Late'-period finds, *it has to be a certainty that other Late Iron Age buildings existed and have not been realised*. For our purposes, one area-example will have to suffice: a swathe running north from the Banjo's Roundhouse 69. We are well aware that returning to the site's raw data, within what should be a high-level summary discussion, breaks the standard rules of publication. But that is just the way Mucking is and it demands its own hermeneutic (see e.g. Evans & Hodder 2006a). You think that something solid has finally been established – in this case the extent of the site's Late Iron Age artefact register – and this causes you to go back again to further interrogate other facets of the raw data.

On Figure 5.37 a number of such building candidates are distinguished within the vicinity of Enclosures 12 and 13. Based on their alignments and morphology, most are likely to be Anglo-Saxon buildings/fixtures (e.g. fence-lines; mc 5896, 12661 & 12663) and probably relate to the posthole buildings attributed to that period immediately to the southwest (e.g. PHBs 5 & 28; see Fig. 4.65). Of greater relevance to the issues raised here is the more squat sub-rectangle within the interior of Roundhouse 69 and which apparently cut its gully (the northern end of this would-be structure also corresponding to one of the potential post-circles; see Fig. 4.59). Extending over *c.* 4.20 × 5.90m, this would not be out of place at, for example, Skeleton Green, whose sub-surface period-building representation was slight (Partridge 1981, 32–4, fig. 5).[29] At Mucking, comparable arrangements might also occur within Roundhouse 53's interior (see Fig. 4.18) and, also, at 970N × 220E (just east of RH44; Fig. 5.36).[30]

It is at this point that we turn to the site's Late Iron Age burials. Tentatively attributed to Conquest/Early Roman times, but having Late Iron Age origins, the ambiguity of the assignation of Cemeteries III and V – due essentially to their weak dating evidence – is particularly unfortunate. Previously there would have been less doubt of Cemetery III's dating as its inhumations would, *de facto*, be considered Roman. Yet, in recent years the extent of Iron Age inhumation rites has become increasingly apparent (e.g. Hey *et al*. 1999), especially in Kent (Champion 2007c, 123; Booth *et al*. 2011, 235 & 311; Stevenson 2013, 151). If contemporary, Mucking's two cemeteries would then raise questions relating to co-existing burial rites and, therefore, potentially diverse populations; with its many separate cemeteries, this is an issue that is explored at greater length in the Roman volume. However, while recognising this possibility, for our immediate purposes (and the period-tabulation of the site's dead; Tables 1.2 & 6.2) all of Cemetery III's inhumations will be considered Roman.

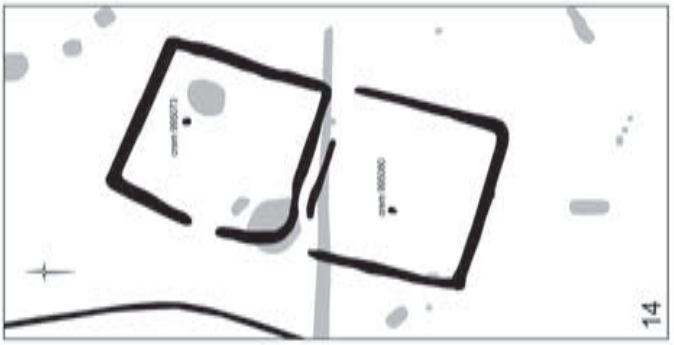
The site's square barrows evidently related to the Aylesford-Swarling burial tradition (see e.g. Whimster 1981, Hill *et al*. 1999 and Fitzpatrick 1997, 208–13). As opposed to mortuary enclosures as such, within the region barrow settings that have been confirmed by excavation are rare (see e.g. Hill *et al*. 1999 for review). Though admittedly not including any conjoining arrays such as Mucking's, many possible square barrow cropmark settings are known from Essex (Whimster 1981, fig. 45):

> A series of isolated square enclosures from southern Essex also have morphological affinities with square barrows, although the poor definition of some of the crop marks renders close comparison difficult…Probably the most convincing examples are a pair of enclosures lying approximately 10 m apart at Birch…Single isolated enclosures at Langford, Gray's Thurrock, Little Baddow, Mount Bures, Great Braxted and Langham are all associated with ring ditches (D. 3.12, 14, 16, 18, 20 and 22), although it is impossible to determine from the photographic evidence whether all or any of these are funerary enclosures rather than domestic structures. At Gray's Thurrock (D.3.12) the relationship between the square enclosures and ring ditch is particularly interesting, as both lie close together within a slightly larger rectangular enclosure with at least two well-defined entrances…
>
> *More important still from our present point of view are a linear group of three small conjoined squares containing single central cremations from Mucking, Essex* (M. U. Jones, pers. comm.) and a single 8 m example from Baldock, Herts (I. M. Stead, pers. comm.). *These particular features are so strikingly similar in size to the small enclosures identified as crop marks that it becomes tempting to question whether similar features may not have escaped notice in the course of excavation elsewhere in south-eastern England*, just as the barrow ditches of Yorkshire were overlooked by all but the most recent excavators. *If this was the case it would be no coincidence that so many of the examples have been photographed in southern Essex, for this area has consistently provided one of the densest concentrations of insular La Tène III cremations* (*ibid*., 126 & 128; emphasis added).[31]

Figure 5.38 is intended to convey something of the ambiguity that exists concerning the assignment of the period's barrow *vs*. building architecture. On the one hand, there is Mucking's seemingly genuine 'Belgic house', Structure 6, and its comparison to the site's square barrows (Fig. 5.38.1–2). Of directly comparable form, there is also Westhampnett's ditched, square cremation setting/barrow (Fig. 5.38.3; Fitzpatrick 1997, 40, fig. 33), and the shrines from Biddenham and Heybridge (Figs. 5.38.5 & 5.38.7; Luke 2008, 227–31, fig. 9.16 and Atkinson & Preston 1998, 92. fig. 7a).

Another parallel might be found in the 1970–3, Area J excavation at Kelvedon, Essex, which exposed

Mortuary enclosure
12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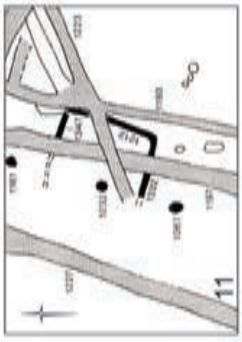
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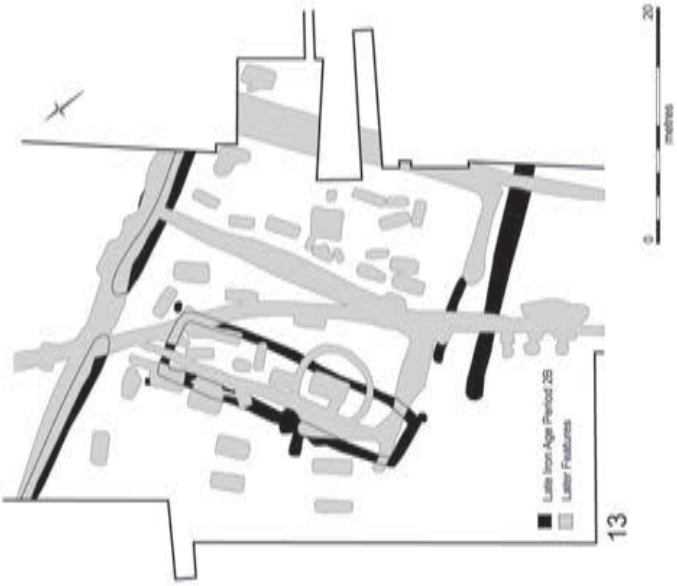
Late Iron Age Period 2B
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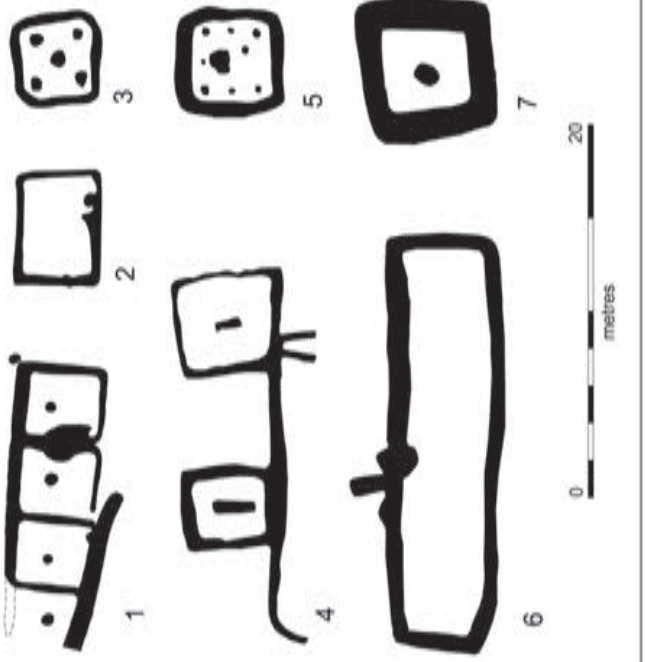
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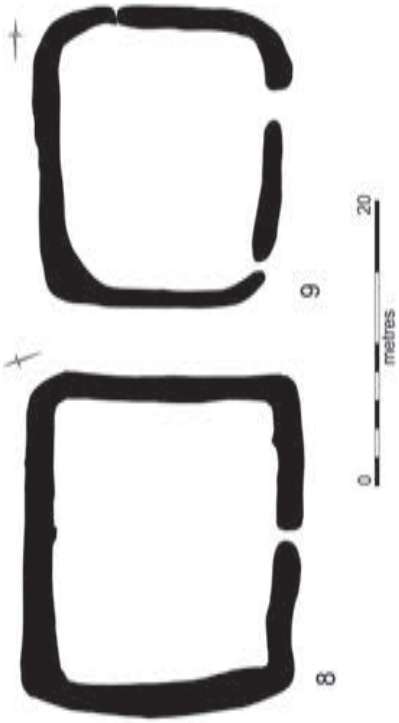
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Figure 5.38. (opposite) Comparative Late Iron Age mortuary settings and 'architectures' (regional; not oriented to north): 1 & 10) Mucking Square Barrows 1–4; 2) Mucking, 'Belgic house' (Structure 6); 3) Westhampnett square barrow (Fitzpatrick 1997, 40, fig. 33); 4) warrior-burial square barrows, Brisley Farm, Ashford (Stevenson 2013, fig. 6.1); 5) Biddenham 'shrine' (Luke 2008, 227–31, fig. 9.16); 6) Kelvedon, Structure 3 (Rodwell 1988, 15–21); 7) Heybridge shrine (Atkinson & Preston 1998, 92, fig. 7a); 8) Mucking's 1100 Enclosure; 9) Little Paxton, putative square barrow (A. Jones 1997 and 2011); 11) North Shoebury, three-cremation alignment and ?square mortuary enclosures (1347 et al.*; Wymer & Brown 1995, 34, figs. 25 & 28); 12) Stansted, northern enclosures (4; Cooke* et al. *2008, figs. 6.5–7); 13) Kelvedon, Structure 3 with overlying Roman cemetery (Rodwell 1988, 15–21); 14) Stansted, western 'cells' (Cooke* et al. *2008, fig. 6.3).*

a 5 × 21m, ditch-defined, Late Iron Age rectangular structure (Fig. 5.38.6 & 5.38.13; Rodwell 1988, 15–21). There is some irony in this, as this setting may well itself have influenced the interpretation of Mucking's square barrows as 'Belgic houses'. Yet, now the tables turn and Mucking's evidence could call for a reappraisal of Kelvedon's. It is crucial that we set its determination as a building in context. With Iron Age studies then very much focussed on distinguishing cross-channel influence (see e.g. papers in Cunliffe & Rowley [ed.] 1978), during the 1970s the discovery of substantial Late Iron Age longhouses – comparable to Camulodunum's post-and-trench ranges (Hawkes & Hull 1947, 89) – was anticipated and, in this, Kelvedon's Structure 3 fulfilled expectations. Indeed, there is a telling parallel here with Britain's Neolithic studies, for which there were very few convincing house candidates prior to the 1990s. Since that time numerous Neolithic rectangular buildings have come to light, but the same is not true of the later Iron Age or, at least, large robust examples (as opposed to post-built 'sheds'). Although its building status has been uncontested, Kelvedon's (very) 'long' structure remains unique. Despite the apparent interruption to its entranceway on its western side and that it was evidently without internal 'bay'/barrow sub-divisions, it certainly appears similar to Mucking's barrow arrays.

Certainty of the Kelvedon setting's mortuary association is impossible to establish. While little Late Iron Age pottery came from the ditches of its would-be structure, some quantities were recovered residually – largely from the Roman graves that pockmarked the area – and six potin coins and, at least, the same number of La Tène III brooches were recovered (Rodwell 1988, 21 & 132). It is true that none of that cemetery's 35 cremations could be assigned to pre-Roman times. Most, however, were plough-damaged or otherwise disturbed, and it was thought that probably less than half the original number of cremations survived (*ibid*., 42); accordingly, any Late Iron Age burials may have been lost.

Also featuring in Figure 5.37, a number of mortuary enclosure settings are known from Essex. Of these, probably the most comparable to Mucking's is the alignment of three 'Belgic' cremations, set approximately 7m apart, at North Shoebury (Fig. 5.38.11; Wymer & Brown 1995, 34, figs. 25 & 28). The central cremation with the greatest number of accompanying vessels (five), appeared to lie within what was probably a square ditch-setting (*c.* 7.75m across). Aside from an earlier excavated rectangular shrine structure (No. 667; Havis & Brooks 2004, chap. 4), there were also ditched cremation settings at Stansted (Fig. 5.38.12 & 5.38.14). Along the western side of the more recent excavation was a pair of 13m-square 'cells' (aligned north–south), both of which had Late Iron Age/Early Roman urned cremations within their interiors (Cooke *et al*. 2008, 95–6, fig. 6.3). Somewhat smaller in its ditched 'parts' was an array of three conjoining square/rectangular mortuary enclosures to the north. While the easternmost had one cremation, with the central having none, the western setting (10 × 11m) held five, two of which were contained within jars (another two having single ancillary vessels; *ibid*., 98–100, figs. 6.5–7).

Both the Shoebury and Stansted ditched cremation settings apparently related to enclosures, rather than barrows as such. Such square or rectangular enclosures are known from a number of Aylesford-Swarling cemeteries; for example, King Harry Lane and Folly Lane at Verulamium, Stanway and Birch near Colchester, as well as Maldon and Great Dunmow (Crummy *et al*. 2007, 69–84; Lavender 1991; Niblett 1999, 15; Stead & Rigby 1989, 80–6). These are frequently very large (e.g. 60–90m across at Stanway; Crummy *et al*. 2007, 69–81), and even the smallest tend to enclose more than 10 × 10m (e.g. Fig. 5.39; King Harry Lane: Stead & Rigby 1989, 80–1), as opposed to the 4 × 4m of each of Mucking's squares.

In this regard it can be questioned whether the 1100 Enclosure was itself a mortuary enclosure (Fig. 5.38.8). This is obviously impossible to establish without being able to ascertain if any quantity of domestic material was recovered from it. It may, though, be relevant that in the Little Paxton, Cambs. excavations it was postulated that a near-matching Iron Age enclosure was actually a 'square barrow' (Fig. 5.38.9; A. Jones 1997 and 2011). Very few finds were retrieved from it and with no human remains forthcoming, that interpretation seems difficult to substantiate. However, clearly lying at some remove from the core-area of Mucking's Iron Age settlement, and with its cemetery evidence (though this usage

Figure 5.39. Further comparative mortuary settings (with Mucking's Square Barrows 1-4 and its nine-poster inset to scale in middle; Square Barrows 5–8, bottom right): top, Prae Wood, Verulamium, Herts. (Stead 1969); middle, Ménil-Annelles (left) and, right, Bucy-Le-Long (Stead et al. *2006, fig. 2; Haselgrove 1996, fig. 4); bottom, Ville-Sur-Retourne (Stead* et al. *2006, fig. 5).*

may have been secondary), a specific mortuary function for the 1100 Enclosure remains a possibility.

In attempting to find parallels for Mucking's Iron Age burial settings – particularly its square barrows – we have thus far followed the well-trodden path of working our way through local and regional contexts. Certainly, its barrows would seem to be of Late Iron Age form, as opposed to Early Roman (whose barrow settings are generally far larger; see e.g. Jessup 1959).[32] While vague 'period' similarities have been documented (or perhaps construed), it cannot be said that the results have been terribly convincing. Accordingly, in a final effort we cast our search net further to northern France and, as shown on Figure 5.39, this eventually proved fruitful. While in the cases of Ménil-Annelles and Bucy-le-Long cemeteries, this is at a basic level of shared mortuary-setting 'grammar' (e.g. see Haselgrove 2007 496–9, fig. 3 and Hamilton 2007, 94–7) – involving aligned square barrows and various four- and eight-post framed interments – it was only with the Ville-Sur-Retourne La Tène III cremation cemetery in Champagne (Figs. 5.39–40; Stead, *et al*. 2006, 10–15) that something approaching 'dead-ringer' status was achieved. The linked small barrow (3–4m across) 'cell-arrays' along that cemetery's eastern side mirror those at Mucking.[33] While the ramifications of this 'matching' will be further explored below, it will have to left to other researchers to more fully address this question (see Roymans 1990, 228–32 for an overview of Aisne-Marne region cemeteries; see also Fitzpatrick 1997, 208–9 & 239, fig. 116).

Having struck upon such a direct Continental match for Mucking's barrows, what then of The Plaza's ceremonial ground itself? The open rectangle, 'array'-flanked – both by barrows and granaries – assembly of its parts bears comparison to Acy-Romance's 'courtyard' layout (Fig. 5.35) and the plans of other northern French Late Iron Age central open-space settlements (Haselgrove 2007, 504–7). Its subsequent post-line settings have affinities to Fison Way, Thetford and Hayling Island's (Late Iron Age) fenced/palisaded spaces (with the 'Post-set Square' adjacent to the North Enclosure being itself vaguely comparable; see Fig. 4.49). Yet, as a whole, no direct parallels for The Plaza's arrangement are known. This, of course, should be prefixed by 'as yet'; given the variability of later Iron Age ritual centres/sanctuaries (see e.g. Wait 1985, Smith 2001 and Bradley 2005, 165–90), any sense of 'normative expectation' is not really applicable.

Turning once more to the regional context and the site's burials themselves, central cremations in square and rectangular enclosures from other major Aylesford-Swarling cemeteries often include the intermediate or lavish burial types identified by Whimster (1981, 158–9; see Hill 2007, fig. 13 for their distribution). These are accompanied by multiple vessels, metal objects and imported goods. In contrast, at best Mucking's burials fall into his 'modest' category. Such interments usually include one to five vessels and may also incorporate further objects, such as brooches and other metalwork items; Cremation 1011's possible circular knife and Cremation 103's 'box'/canister being examples of the latter. It is notable that two of the site's square barrow interments were completely unaccompanied (Cremations 1012 & 1013), placing them amongst the apparently 'poorest' graves from the Aylesford-Swarling tradition. This makes it difficult to interpret the cremations from Mucking as straightforwardly 'rich'. Though perhaps just representing a local variation on the usual funerary rite, while Mucking was clearly involved in long-distance trade its inhabitants were evidently not receiving significant high status goods through these exchanges.

Cremation 792 seems distinct amongst the site's interments. Located beside the southern square barrow-line and apparently without any accompanying pots, it had an impressive metalwork assemblage that included what was probably the rim of a bronze sheet vessel. That the metal items were severely burnt suggests that this was a pyre deposit. It had by far and away the greatest weight of burnt human bone of any of Mucking's cremations – 2450g – nearly twice that of any other, and included remains from at least four individuals.[34] Usually involving an adult with an infant, while double cremations are not uncommon (e.g. Fitzpatrick 1997, 70; Hill *et al*. 1999, 253), such a mass deposit is without known parallel. It raises questions of whether they had all died at the same time through either mishap or disease, or if some of the bodies had somehow been 'stored'. Alternatively, the deposit could represent the accrued remnants of a successive-use pyre site, upon whose final firing the residues of previous cremations were incorporated; the records, unfortunately, are such that this matter cannot be clarified.[35]

There is a significant degree of ambiguity concerning the precise dating of some of Mucking's Late Iron Age cremations, as few seem to be 'classic'. On the one hand, we have Cremation 87's La Tène-decorated vessel, which seems potentially some decades too early for the standard assignation of such rites. On the other hand, and as considered by Thompson above, the pot with Cremation 1011 in Square Barrow 2 seems almost of Conquest-Period attribution, and is either very Late Iron Age or even Early (-iest) Roman. There is simply no escaping the fact that there are problems with Mucking's Iron Age chronology, particularly that for the 'Late'.[36] Perhaps this is due to the fact that, by necessity, we have had to apply a conventional pottery-type chronology. That said, we have, for example, considered the possibility

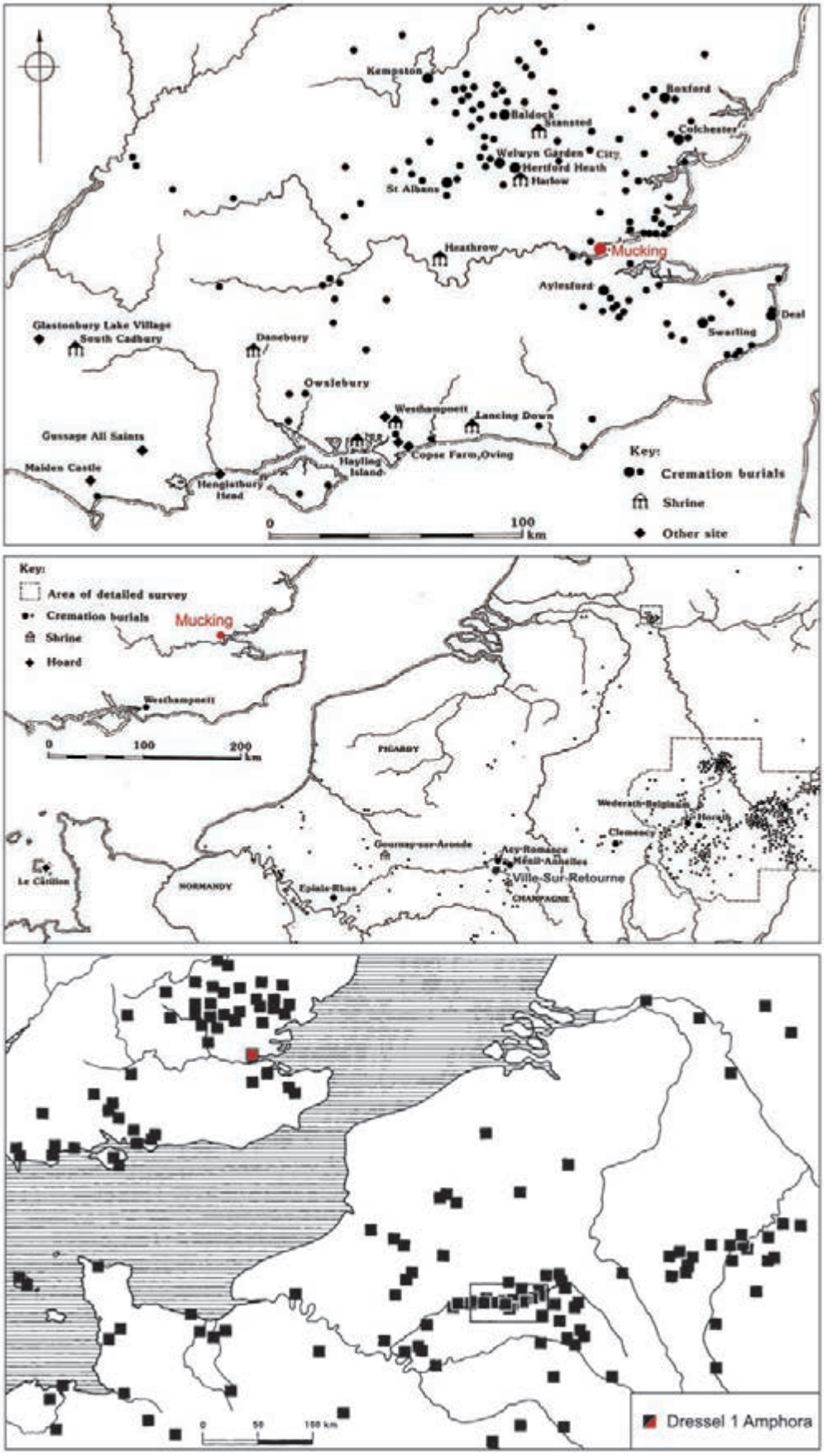

Kempston
Baldock
Stansted
Boxford
Colchester
Welwyn Garden City
Hertford Heath
Harlow
St Albans
Heathrow
Mucking
Aylesford
Deal
Swarling
Glastonbury Lake Village
South Cadbury
Danebury
Owslebury
Westhampnett
Lancing Down
Gussage All Saints
Maiden Castle
Hengistbury Head
Hayling Island
Copse Farm, Oving
Key:
Cremation burials
Shrine
Other site
0
100 km
Key:
Area of detailed survey
Cremation burials
Shrine
Hoard
Mucking
Westhampnett
0
100
200 km
PICARDY
Wederath-Belginum
Horath
Clemency
Gournay-sur-Aronde
Acy-Romance
Mesnil-Annelles
Ville-Sur-Retourne
CHAMPAGNE
Le Câtillon
NORMANDY
Epiale-Rhas
0
50
100 km
Dressel 1 Amphora

Figure 5.40. (opposite) Cremation cemeteries and cross-Channel connections: top, distribution of Late Iron Age cremation burials in southern England (after Fitzpatrick 1997, fig. 115; copyright, Wessex Archaeology); middle, near-Continent distribution of Iron Age cremations (after ibid.*, fig. 116; copyright, Wessex Archaeology); bottom, cross-Channel distribution of Dressel 1 amphora, with Mucking red-indicated (after Haselgrove 1996, fig. 19; note, that while we are aware that these are 'old' distribution maps that now require revision, they nonetheless still convey relevant cross-Channel linkages well).*

that the use-duration of the La Tène-decorated wares could have locally been longer than is normally accredited (and found this to be unsubstantiated). As discussed in the third case-study in the preceding section, these difficulties also relate to the high degree of continuity witnessed in the region's Late Iron Age and Early Roman local pottery production. Indeed, *'The Conquest' seems to have had limited immediate impact on the terrace's populace*. Burial within the square barrows apparently stopped, but settlement/usage evidently continued uninterrupted at the Banjo and RBI Enclosures. This sense of continuance is further reflected in the stand-off/respect afforded to The Plaza's ceremonial space in Roman times (as well the adjacent continuity of burial in Cemetery RBII; see Fig. 6.25).

While at risk of repetition, let us emphasise that, as typified by Cremation 1011's handmade imitation of a trumpet pedestalled urn, Mucking's Late Iron Age cremations – even those associated with its square barrows – were certainly not of the period's highest social ranking. Here, the site contrasts with Elms Farm, Heybridge, where high levels of Roman imports were evidently being obtained and consumed (see Sealey 2009, 15–22 and Willis 2013).[37] Indeed, there seems to be a discrepancy between The Plaza's extreme formality, especially its visibly 'announced' grain storage (i.e. Granary Row), and the relative modesty of the site's contemporary burial expression. If wishing to attempt 'history', it could be suggested that, while telling of immediate-area landscape control/power, this occurred under the hand of *a removed off-site authority* and perhaps attests to some manner of hierarchical clientage relationship. Though there seems to be nothing particularly remarkable in the number of the site's mid first-century BC to AD coins (just five in total), the three Cunobelin coins from the Camulodunum mint certainly tell of a degree of 'connectedness'. This is especially true of the rare settlement-context recovery of a silver issue, which, as shown on Figure 5.23, depicts Cunobelin seated. Resonating with Lexden's folding chair (Foster 1986), that he is effectively enthroned clearly speaks of the political geography of the period's 'Eastern Kingdom' (Creighton 2006, 38–41, fig. 2.3; Perring & Pitts 2013, 23–5).

With the apparent matching of the site's square barrows with those from France's Aisne-Marne region, an even more distant linkage might be indicated, possibly one involving direct contact and, albeit limited in the light of its few imports, even some population movement. A connection that might relate to the site's *Terra Rubra* kilns, *Mucking could then well have had a role as some manner of a trading/production depot, with its grain directly exported across the channel*.[38]

It would be erroneous to see such contacts as just an attribute of the site's 'Late' period. Of somewhat earlier date, one of its potins and two 'later' brooches may also have been imports, and Haselgrove remarks that the rare, sixth–fifth century BC *Fusszierfibeln* brooch was either an import or a very close copy. Equally, Brudenell notes that at least one of its Early Iron Age vessels was potentially a Continental import; that pot's possible source in the Champagne District might suggest that Mucking's 'Late' linkages with that region could have already existed for some centuries.[39] In short, there can be no doubt that these were *connected communities*.

Notes

1 This contribution excludes discussion of the MPX drawn-archive Early Iron Age material presented in Chapter Four; note that two of the pottery groups presented there – Numbers 8 and 9 – actually fell within the area of the North Enclosure.

2 During the course of a final visit to the Dean Hill stores (28/03/12) the opportunity was taken to view material from others of the site's roundhouses. Aside from noting the occurrence of a Middle Iron Age sandy ware sherd from Roundhouse 40, confirming the Early Roman date of Roundhouse 56 and establishing the Early Iron Age date of Roundhouse 39's assemblage, Roundhouses 46 and 70 were attributed to the Middle Iron Age (with RH74 being Middle Iron Age/possibly Late Iron Age); Roundhouse 51 is of Middle Iron Age/later Iron Age date; Roundhouse 49, Middle or Late Iron Age; Roundhouse 52, Middle/Late Iron Age (with the shell-tempered pottery from RH66 being undated).

3 Excluded from this study is still another early brooch from an Anglo-Saxon grave (No. 123; 1200N × -60E), apparently a Colchester Derivative type (Fig. 4.57; Hirst & Clark 2009, 375, fig. 195.8).

4 The Roman reuse of both RBI and the Banjo complex's enclosures makes the distinction of Roman and Iron Age ironwork difficult. In addition to the metalwork reported here, as fully described in the Roman volume two pieces from these enclosures may, in fact, be of Iron Age origin. These are a spirally twisted handle from Level 10 of RBI (Fe 3266; 155N × 225E), an area where a large quantity of Iron Age pottery was found in the lower fills of the ditch, and an 'iron round-sectioned stem with looped terminal, pointed tip and humped profile' found in the upper fills of Enclosure 12 in the Banjo area (3300; 1225N × 150E, level 2, depth 6–12").

5 Outlining the technical procedures involved, the first section of this report has here been omitted (see, though, Dungworth & Bayley 1999).
6 The full technical description and fabric analysis (including the Iron Age fabrics) of the site's refractory evidence is presented in Chapter Three. The following text and tables provide the summary evidence for the Iron Age material only.
7 This section's text has been summarised from Barford's archival report.
8 At this point the manuscript has a handwritten note, probably by Margaret Jones, stating 'Date Nene Valley: much later'. In the *Comparanda* section a second group of comparable, although taller, objects are cited from various Upper Nene Valley sites, as well as also Colchester, Essex (Reader 1908, 34 & fig. 20). Runcton Holme, Norfolk (Hawkes 1933) and Elstow Kiln IV, Bedfordshire (Swan 1984, 59 & pl. 18); this part of the manuscript has been omitted.
9 A note in one the files indicates that, out of total of 134, only some 50 boxes of the period's animal bones were examined. Unfortunately, we have no idea what proportion of this material the plots in Figures 5.20 and 5.21 actually include.
10 With this report prepared in 1981, it has unfortunately not proven possible to determine the sample's exact location; it is presumed to be from the enclosure's main circuit.
11 See Curteis' recent overview of the region's coinage recovery-rates and distribution (in Perring & Pitts 2013, chap. 5).
12 A number of such iron brooches do, though, occur in early first-century AD contexts and, while predominantly of earlier date, it is not impossible that some actually dated to the final quarter of the first century BC (C. Haselgrove, pers. comm.).
13 The distribution of the Mucking assemblage's main 'hallmark' trait – 'Z'-rouletting (Elsdon 1975, 21) – is also shown on Figure 5.25 (see also Fig. 5.6).
14 The only close possible parallel would be that at Hothfield Common, near Ashford, Kent. There, within the area of a small Late Iron Age cremation cemetery, in one case calcined bone was apparently found with sherds from an incised double-arc- and dimple-decorated vessel (Brinson 1943, pl. II, Pot C); see also Ward-Perkins on a much more dubious vessel-association from Plaxtol, near Maidstone (1938, fig. 11.3) and also concerning Canewdon, Essex (*ibid*., 166, figs. 10.1–2). The use of a 'pre-Belgic'/Middle Iron Age pot for a cremation has been reported from Kelvedon High Street, Essex (Bennett 2004, 241).
15 The recovery of a metalworking mould (from the vicinity of the 1100 Enclosure), with concentric curve impressions (see Dungworth & Bayley, above, Table 5.12, No. 34) could, in fact, suggest the on-site manufacture of La Tène-style bronzes.
16 The emphasis that Mucking would sort out crucial issues of the region's assemblages is common to many publications of the 1970s–80s. This sense of long-anticipated promise would surely have added to the ever-accruing burden of the 'non-appearance' of its reports.
17 Featuring in neither Elsdon's 1975 or Thompson's 1982 studies; for example, only two of Westhampnett's some 250 cremation vessels were so-marked (Fitzpatrick 1997, figs. 83 & 100).
18 Fabric TRB at Mucking is a bit of a red herring; sherds in this fabric (634 sherds, 6.90 EVEs) are predominantly in accepted Romano-British forms, are recorded as burnt, and come from the smaller Kilns 11, 19 and predominantly 22. This would seem to be misidentification of misfired fabrics.
19 Apparently Oxford Archaeology has recently excavated a series of probable pre-Conquest (imitation) *Terra Rubra* kilns at Bricket Wood, south of St Albans (Junction 21a of M25; I. Thompson pers com.).
20 Fully presented within the Roman volume, these form designations are based on those established from Camulodunum (Hawkes & Hull 1947). Two *Terra Nigra* fabrics were distinguished: TNA (black surface, pale grey paste; smooth, fairly hard, finely irregular fracture, with very fine sand; identified by V. Rigby as 'real' *Terra Nigra*); TNB (black surface, pale grey paste; smooth, fairly soft, finely irregular fracture, with moderate to sparse very fine sand; sparse very fine grog and sparse very fine black iron oxides; V. Rigby identified as '?Colchester', but possible import).
21 Mucking's Early Iron Age 'clear-out' was probably also due to the fact that originally far too much of the site's pottery had been assigned to that phase given that, prior to the publication of Little Waltham (Drury 1978b), Essex's Middle Iron Age wares were undefined (P. Sealey pers. comm.).
22 See also Perring & Pitts' recent overview of the region's Late Iron Age and Early Roman settlements and ceramics (2013).
23 Yet another line across Axis A could also be postulated: extended east from its northern end, it would run from Roundhouses 101–3 to Numbers 97, 98 and 110 within the area of the North Enclosure. Though of much more dubious status than the other house-line axes – as well as only largely visible due to its 'Early' post-circle settings – if real, it could imply that the determination of the North Enclosure was comparably house-led, which has also been suggested by Roundhouse 97's slightly off-centre location.
24 This is also, for example, the case at Heathrow/Perry Oaks, where in its Late Iron Age/Early Roman manifestation only one or two roundhouses were then active – as opposed to 17 of Middle Iron Age attribution. This later period also saw a probable rectangular structure, and less than half the amount of pottery was recovered than from the preceding 'Middle' phase (Framework Archaeology 2006, 202–8, figs. 4.20–1).
25 See, though, the bewildering density of Early Iron Age 'posters' recently excavated at White Horse Stone, Kent (Booth *et al*. 2011, 197, fig. 4.24). At Mucking, given the obvious limitations of its environmental programme, that Greig did not identify cereal pollen within the North Enclosure's column-sample cannot be taken as negative evidence.
26 There were rumours of there being Iron Age coin moulds from the site, but this is unfounded. While possibly deriving from misidentified perforated clay slabs (see Chap. 3), in all likelihood this relates to that fact that, for a brief time, Margaret Jones's material from Old Sleaford – where moulds occurred (Elsdon 1997) – was apparently also housed in the MPX offices.

27 See, though, Sharples 2010, 192–7 and 212–22 on the greater size of some Late Bronze Age/Early Iron Age houses in contrast to those of the Middle Iron Age; the diameter of, for example, the Late Bronze/Early Iron Age transitional house at Longbridge Deverill, Cow Down, Wilts. being 15.5m.

28 On the grounds that their linking ditch-length cut the IA13 boundary, it might be argued that Roundhouses 86/88's eavesgullied 'pair' was of 'later' attribution. Based on the occurrence of La Tène-decorated wares within them, the same mid/later first-century BC dating can also be applied to Roundhouses 4, 24, 69 and 110 (and, more indirectly, Nos. 90/96 & 104). On other criteria, Roundhouse 89 within the North Enclosure should also be accredited with that status; Late Iron Age brooches were forthcoming from Roundhouses 69 and 110.

29 Although their period-assignation is not definite, comparable settings were also recovered at Highstead, Kent (Bennett *et al*. 2007, 47–51; see also e.g. Stevenson 2013, 93–4, fig. 5.23 and Lambrick & Robinson 2009, 151, fig. 5.10); see Close-Brooks' 1993, 336–7 distinction of a 7.5 × 8.0m post-built rectangular structure at Little Waltham and Sealey 2013, 45 on other Late Iron Age rectangular building candidates from Essex.

30 The components of the latter, like that of the mc 12661/12663 settings, was assembled as a building candidate in the archive's 'Posthole Buildings' files, but eventually not formally designated a building as such (see Hamerow 1993, 8). We have also reviewed the evidence of the Anglo-Saxon rectangular buildings within the area of The Plaza/Double Ditch Enclosure. Some of the more irregular ones, such as PHBs 37 and 44 (Fig. 5.35) might well have come to 'envelope' earlier elements – the plans of the more irregular and less convincing longhouses were omitted from Hamerow's inventory (1993, 102–7), hence their inclusion in that figure. Yet, based on morphology, finds and alignment, their attribution generally seems sound. It was the latter criteria – their alignment in relationship to the RB4 and 5 ditches (Fig. 4.73) – that led us to explore this possibility. As outlined in Chapter Four (see *The Conquest Period and Early Roman Landscape*), it was the eventual security of their attribution that then led us to query the recorded stratigraphic relations of those boundaries.

31 It is worth remembering that Mucking's square barrows did not themselves register as cropmarks, and that the smallest of those cited by Whimster are still 6.0m across (i.e. half again as large as Mucking's; see also Ingle & Saunders 2011, 70, 79 & 81). Whimster rightly highlighted the dearth of square barrow cropmark evidence south of the Thames Gateway-area (1981, 128): the 'heartland' of the Aylesford-Swarling tradition. Although none have been recovered in the course of Kent's recent huge-scale 'linear' projects (e.g. Booth *et al*. 2011), in 2001 excavations at Brisley Farm, Ashford exposed two Late Iron Age 'warrior' inhumation burials, each within individual ditched square barrow settings of a size comparable to Mucking's (see Fig. 5.37.4; Stevenson 2013, chap. 6).

32 A small, 6.0m-diameter ring-ditch was, however, apparently found associated with Westhampnett's Romano-British cremation cemetery (Fitzpatrick 1997, 242, figs. 40 & 139). Equally, relatively small, square ditched enclosures (9 × 9m and 6.5 × 7m), thought possibly to be ploughed-out Early Roman square barrows, were dug in the course of the Norwich Bypass excavations (Ashwin & Bates 2000, 180, fig. 145; see, also, *ibid*., 117, figs. 97–101). Also in Norfolk, associated with the Fison Way complex were several small ring-ditches, 4–8m across (Gregory 1991). Of Late Iron Age/Early Roman date, a number of these had grave-like features within their interiors. Although lacking both grave-goods and any skeletal remains (the latter, though, would not survive in the local acid soils), these were interpreted as funerary-related; the unusual nature of the burial rite being attributed to the fact that the area lay beyond the classic 'Belgic' cremation zone (*ibid*., 63).

33 With their individual 'barrow cells' no doubted successively added, Mucking and Ville-Sur-Retourne's 'line-linked' arrays fundamentally differ from such East Yorkshire cemeteries as Wetwang. Not only are the Yorkshire cemeteries of earlier, third- and second-century BC date, but while densely packed, they were nonetheless individually ditch-bounded and did not expand along semi-continuous 'ranges' (see e.g. Dent 1982; Jay *et al*. 2012). Apparently in northern France, ditched barrow-enclosures of the sort of SQ1–8 are usually of La Tène C date, but they do (just) continue into D1; as Brisley Farm indicates (Stevenson 2013), in England they evidently can be later (Fitzpatrick pers. comm.).

34 Cremations 87 and 1011 respectively had 1245 and 1299g. That said, the majority – 70% – of Westhampnett's cremations had less than 200g of human bone (Fitzpatrick 1997, 213–14; Carr 2007, 449).

35 Apparently Heybridge's pyre sites consisted of elongated hollows/scoops and had evidence of *in situ* burning. Along with burnt pottery and metalwork, the fills contained up to 'several hundred grams' of burnt human bone, with the lack of disturbance suggesting that each pyre location had only been used once. Amongst the pyre-related features – lacking evidence of *in situ* scorching – one contained over 58kg of pottery, much of it distorted through burning (reported in Sealey 2013, 52–3).

36 For example, Haselgrove's relevant-context brooch dating is consistently earlier than Thompson's.

37 Mucking would certainly present a far cry from either Fishbourne or Hengistbury where, in the Late Iron Age, respectively 39% and 25–51% of their pottery assemblages consisted of imports (Sharples 2010, 167).

38 Such cross-channel linkages could, of course, open up other 'distant' possibilities; for example, does it then become reasonable to compare the Banjo's plan to that Quilly's Enclosure A interment setting (also in Champagne; Stead *et al*. 2006, 25–6, figs. 15 & 17) or Oss-Ussen's 'keyhole' enclosure (see Hamilton 2007, fig. 7)?

39 Some of the site's Early Iron Age haematite-coated wares might have also been imports (see Brudenell, Chap. 4).

Chapter 6

Patterned Ground/Interim Knowledges Sequence Revisited and Retrospect

> If anyone were to read my novels he would see that they abound with *lists*, and the origins of this predilection are two, both of which derive from my studies as a young man: certain medieval texts and the many works by James Joyce…But between litanies and the list of things contained in the drawer of Leopold Bloom's kitchen in the penultimate chapter of *Ulysses* there stand a good number of centuries, and many more centuries again stand between medieval lists and the model par excellence: the catalogue of ships in Homer's *Iliad*… it is also in Homer that we find the celebration of another descriptive model: the one ordered and inspired by the criteria of harmonious completion and closure represented by Achilles' shield. In other words, already in Homer it seems that there is a swing between a poetics of "everything included" and a poetics of the "etcetera".
>
> …Then there is the problem of deciding what a figurative list may be. The few books on the poetics of lists prudently limit themselves to verbal lists, because it is very hard to say in what way a picture can present things and yet suggest an "etcetera", as if to admit that *the limits of the frame oblige it to say nothing about an immense number of other things* (Eco 2009, 7; emphasis added; see e.g. Fig. 1.20's 'lists').

We do not for a moment fool ourselves into thinking that this amounts to any kind of standard site-reportage text. While the montage-like qualities of its unwieldy archives will be further discussed below, this book also has some of the qualities of a post-modern detective story (think of William of Baskerville-*cum*-Sherlock Holmes in Eco's *The Name of the Rose* of 1983). It has involved tracking down a range of disparate sources in the hope of piecing together time-frame/chronological clues and long-term causation, but knowing full well that much of the past – just like the site's interpretation – was determined by immediate happenstance. This has clearly been an instance of having to write archaeology based on *partial knowledges*. Albeit more extreme in this case due to the state of the site's archive (incomplete finds study, *etc*.), *conditional knowledge is inherent when writing the past*. Our techniques will forever be wanting, and determining influences and impacts will always lead outwards beyond the edge-of-excavation (however large that may be) and, accordingly, *there can be no easy narratives of the past*.

Aside from providing a degree of final project retrospect, in this chapter our main aim is to off-set the chronologically 'seamed' presentation of Mucking's settlement sequence. We will instead focus on the site's long-term and both its temporal and landscape 'overlaps'. As outlined in this volume's first chapter, to compensate for the project's latest-to-earliest publication structure, here this process will be reversed and its sequence read from the 'bottom up'. This is only appropriate, as the process of the books' production has at various times impacted upon the site's interpretation. For the two CAU volumes, the Roman was done first for logistical reasons and, only then, the prehistoric. In effect, we continued the time-slicing approach of the earlier volumes and, if inadvertently, followed a Hawkesian sense of 'archaeology backwards' (see Chap. 1 and Evans 1998b). Yet, on completing the first draft of the Roman volume, there was some dissatisfaction and an awareness that we had not adequately characterised all of its facets. It was only nearing the end of this volume – especially when having to come to terms with the Iron Age and its 'Plaza' and the Belgic Banjo complex – that a 'driver' was supplied for much that came after. This cast the site's Roman organisational basis within a long-term trajectory and allowed it to be more fully realised. This is not to say that Hawkes was fundamentally wrong and that archaeology must only be evolutionary, but rather that *the provision of contextual understanding is a 'two-way street': both up/down or back-and-forth in time*. Although the site's sequence charts a number of significant developmental trends, appropriately its hub still sits in the (Roman)

Figure 6.1. Quarry Loss: top, the on-going excavation of Roundhouses 82 and 85 in the foreground, with the cropmark of the as yet unexcavated North Enclosure behind; bottom left, the ABC Enclosures gone, with quarry works impinging upon RBI and the South Rings (CUCAP V-DN 4; 18/06/66); bottom right, the Belgic Banjo-area (CUCAP BHM 74; 30/11/71; see also Fig. 1.5). The site was returned to the quarry on a strip-by-strip basis, with limited areas usually only available for excavation at any one time (see also Fig. 1.16); in other words, its archaeology was lost to extraction many times over.

Conquest Period. Effectively marking the interface of prehistory and (proto-) history – and the point where their perspectives most inform upon each other – it is a nice conceit to think that this is something that the Joneses (as well as Hawkes) would have appreciated.

As argued above and further outlined here, Mucking's sequence only 'took off' and became truly distinct from the Late Bronze Age, from whence it continued through to the Anglo-Saxon period. It is surely not coincidental that it is from that time that we see both Thames Gateway-specific phenomena/site-types and type-artefact distributions, with the latter including, for example, the Lower Thames' concentration of later Bronze Age Ewart Park swords or the Mucking-Crayford decorative-style Iron Age pottery (see Fig. 6.2; see Fig. 6.3 for later prehistoric salt production and, also, e.g. Harding 2013). Consequentially, it is with these periods that the site's 'narrative' should be primarily concerned. Given the character of both its archaeology and excavation (i.e. poor bone preservation and negligible environmental data), aside from providing further map-dots the site does little to advance, for instance, Grooved Ware or Beaker studies; but, then, nor is there any evidence to suggest that there was anything particularly locally specific of its occupations from that time. The same argument could, in fact, be mounted for its ensuing Middle Bronze Age usage, as its barrows and fieldsystem essentially attest to more generic and widespread land-organisation patterns.

In contrast, it is with the Late Bronze Age and The Rings that the site first really reflects something truly distinct. From that time its sequence seems to acquire more quasi-'historical' qualities as its successive periods impacted on what went after, and there clearly must be an onus on us to attempt to specify their interpretation.

The Recommendation of Land

The impact of geological/topographic factors as well as earthwork survival would have to feature in any discussion of Mucking's long-term history. The first of these would find its clearest expression in North Field-end of the site, slightly lower in elevation and where brickearth extended along its western margin. With extensive Late Bronze Age settlement, its main activities were, aside possibly from pottery production, the manufacture of salt-making equipment and/or salt production itself; local geology (i.e. clay-availability) therefore influenced its location. Equally significant is how that same area was, after the Early Iron Age, largely avoided for settlement over the next 800 years or so. Whether due to its ground conditions, or that it was considered better suited to arable usage, no Middle/later Iron Age or Romano-British occupation occurred there and it only saw Anglo-Saxon re-occupation.

The ready availability of water might also have influenced the site's sequence. With its terrace perched relatively high in the landscape, prior to the Bronze Age's 'invention' of deep-dug pit-wells, regular daily water-provision may have proven difficult and this might have contributed to the relative paucity of the site's Neolithic–Early Bronze Age occupation/usage (see, though, Wilkinson 1988, 6 concerning differences in prehistoric and modern-day water resources).

Consideration of the long-term attraction (or otherwise) of Mucking's terrace locale also helps to frame comparisons that will be made below between its sequence and those from large-scale Fenland projects, and makes these differences seem somewhat less outlandish. Over the last two decades, the intensity of survey and environmental researches that have been directed towards both eastern England's coast-line and its adjacent sea-beds is comparable to what occurred earlier in the Fens in terms of the discovery of buried landscapes (e.g. Hall & Coles 1994). It is relevant here (and, admittedly, also came as a revelation to us) that, as a direct off-shoot of their renowned Fenland studies, Essex's coastal researches were, in fact, initiated by Clark and Godwin working with Warren (Warren *et al*. 1936; see also Smith 1994, 16 & 25).

In reference to Murphy's contribution in Chapter Two, Mucking's key landfall situation – in effect, a staging point into the Thames and the 'island' of Britain – would have remained relatively constant. However, as regards the transgression sequence across the lowlands to the east below the site, its setting would have changed considerably. As marshland conditions took hold in later prehistory, its locale perched up on the terrace would arguably have become more attractive as a 'platform' for exploiting the local wetlands. This, and the control of salt, plus also probably seasonal pasture (and Thames-related communication/trade generally), may well explain the apparent 'escalation' of Mucking's sequence during the Late Bronze Age, at least in part.[1]

Was Mucking a 'strategic gateway'? Its view-sheds are certainly relevant in this regard (Fig. 6.3). There, and for no more than approximately 0.5km to the south of the site, its situation has two distinct advantages. First, approaching upstream, it is the point where the Thames markedly narrows to become a river only a few hundred metres across, as opposed to its much wider estuary. The second factor is the terrace's view to the east, which is also apparent when sailing downstream at this point. It is at the last bend in the river; from there, looking east, there is only the widening expanse of the Thames, with nothing between you and the Continent, and which

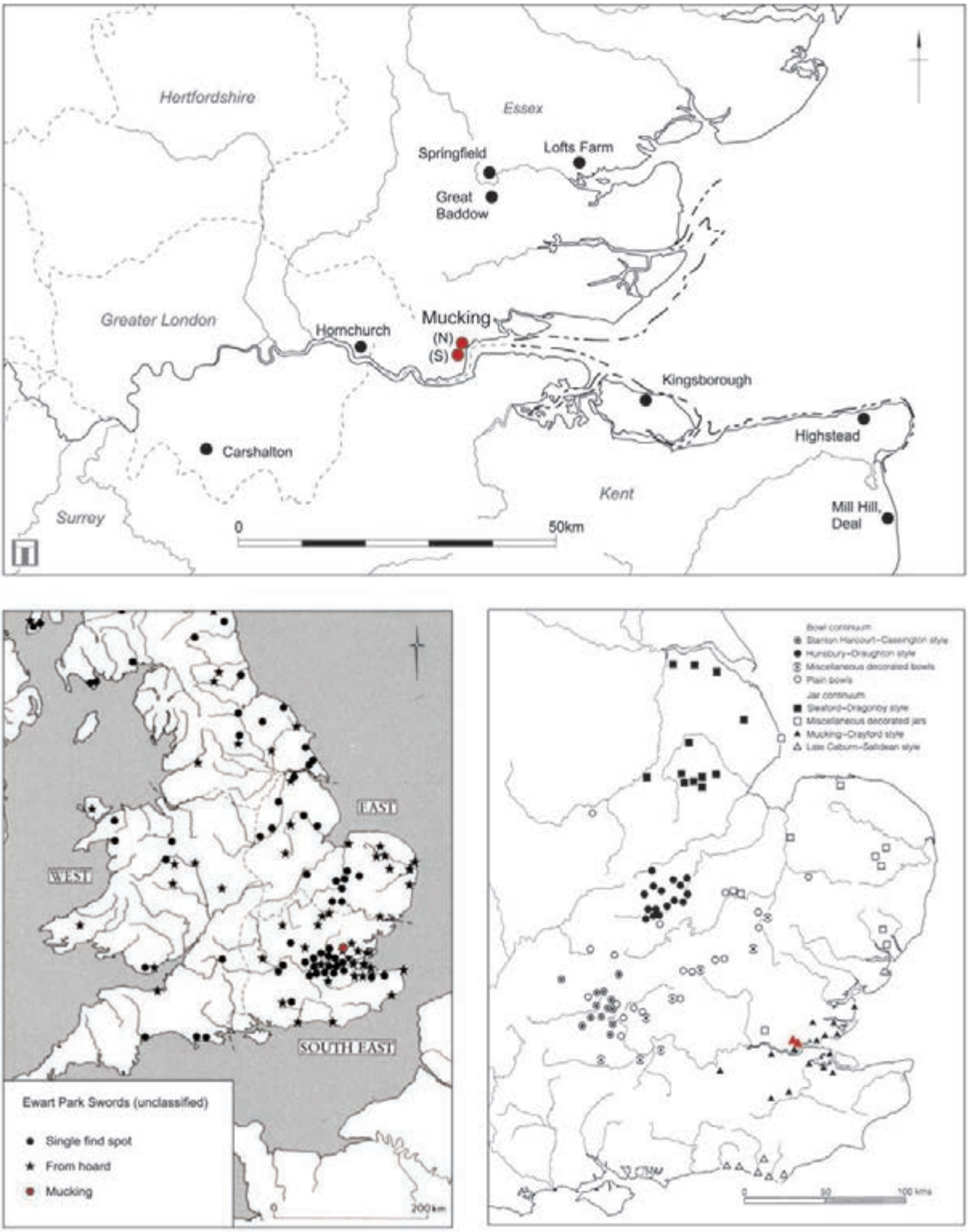


Figure 6.2. Thames Gateway distributions: top, later Bronze Age enclosures/ringworks (after Allen et al. *2008, fig. 25); bottom, Ewart Park-type swords (left, after Colquhoun & Burgess 1988, pl. 131); right, later Iron Age decorated pottery styles (after Cunliffe 2005, fig. 5.9; with Mucking indicated in red).*

would have been advantageous to 'clock' any sea-born arrivals (see, though, Murphy, Chap. 2 above concerning the river's early navigation). This sense of Mucking as an absolutely distinct 'Thames-viewing' place is brought home by a map of the river's lower reaches that featured in Samuel Smiles' *James Brindley and the Early Engineers* of 1864 (Fig. 6.3). Look closely at its left side, as Mucking's escarpment – perched

Figure 6.3. 'Gateway' distribution of later prehistoric salt production (top; after Champion 2007c, fig. 4.29; middle, Mucking's prime view-shed down the estuary, with 'A' indicating East Tilbury to Kent-side crossing (see Fig. 6.10) and, below, Smiles' 1864 map showing the Thames' lower reaches with Mucking's escarpment indicated left-side.

above marshes and commanding the eastward view down the Thames – is actually indicated with hachures.

As to earthwork survival, more than one instance of its 'aftermath' could be cited. Most obvious would be the manner in which the remnant ditch systems of the Iron Age Belgic Banjo complex went on to host and structure the ensuing Early Roman industrial activity within that area. Similar would also be the situation of RB Cemetery I within the interior of the main Iron Age ABC Enclosure. Tellingly, one of the site's other Romano-British cemeteries (No. II) was quite formally bounded by a specific ditched enclosure. It can only be supposed that the lingering earthwork traces of the ABC's square compound still then served as a comparable barrier to the dead.

These are straightforward cases and essentially express 'make-do' long-term functional inter-relationships that are known to be common to many large-scale landscape sequences. Far more ambiguous is the situation of the dead across the south-centre of the site. There, the alignments of Late Iron Age square barrows delineated 'The Plaza' and, in relationship to this, the appending of RB Cemetery II to the southern barrow array would be suggestive of direct continuity (see Fig. 6.25 below). What seems remarkable is the manner in which the subsequent Anglo-Saxon cemetery (II) filled the 'settlement-free gap' between the Romano-British 'Central'/Double Ditch and Southern Enclosures (see Figs. 6.7 & 6.26 below). Again, earthwork survival surely provided the mechanism of its location, but the way that the cemetery effectively filled the seam between the preceding settlement swathes is such that it could almost suggest intentionality and 'respect', if not something more. The crucial question is why it filled the gap where no Roman settlement occurred. This is as opposed to being sited within what would have then surely been the still embanked 'surround' of the former Double Ditch Enclosure system and, like Spong Hill's Anglo-Saxon cemetery, 'occupying' a Roman enclosure (Hills & Lucy 2013).

Equally remarkable is the manner in which the Iron Age Plaza was then apparently left devoid of any significant development during Roman times: essentially, a 'blank' ground at the core of the site – its *empty centre*. It is, however, unlikely in this case that earthwork survival was in any way responsible and, as will be further discussed below, this must reflect respect and that area's 'specialness'.

A propensity for concentric modes of enclosure seems to have been a long-term trait of Mucking's landscape, with four such arrangements being present: the Late Bronze Age South Rings, Enclosures 11/12 of the Iron Age Belgic Banjo and, in Roman times, both RBI and the Double Ditch Enclosures' reworking of earlier, Iron Age settings. As discussed both in Chapter Three and elsewhere (Evans 1989a), while concentric layouts are particularly suitable for defensive modes of enclosure (i.e. defence in successive depth), there is no obvious evidence for this here, though, at various times, such arguments have been mounted for three out of the four enclosures (all but the Belgic Banjo). This 'doubling' rather seems to have been a matter of enclosure redefinition; whether this had any locally specific long-term 'meaning' is an issue that simply cannot be addressed.

As was explored in the letter-exchanges between Margaret Jones and Francis Pryor concerning the arrangement of the Double Ditch Enclosure that featured in the *Fengate Revisited* volume (Evans *et al*. 2009, 12–14), such concentric elaboration – especially if allied with maintained hedge-lines – theoretically has the potential for extended long-term continuities. Yet, *contra* Pryor in their debate, there seems no evidence of this at Mucking. As was evident with the cutting of Barrow 3 by the Middle Bronze Age field boundaries, not even its earlier Bronze Age barrows seem to have been afforded much long-term respect. Indeed, the only definite evidence of such would seem to have been the maintenance of the later Iron Age's Plaza's ceremonial space as open ground in Roman times.

Sequence Revisited and Settlement 'Scaling'

The scope of this section's overview will be extended (by a further 400m, to a total north–south length of 1.25km along the terrace; see Fig. 6.15 for area), by the inclusion, where appropriate, of both the earlier, Linford Quarry findings in the south (Barton 1962) and, to the north, by the Mucking North Ring investigation results (Bond 1988). Ideally, we should begin this exercise by reviewing the site's prehistory. Yet, aside from including its phase plans (Figs. 6.4–5), this seems pointless given its outline within the body of this volume and that matters of its long-term succession will be thoroughly explored in the sections that follow. Instead, what will be presented is Champion's wide-ranging contextual overview of the site's prehistory in the light of recent findings from the Thames Gateway-area.

This section's Medieval/Post-Medieval summary extends still further by the inclusion of Rippon's note concerning the history of marshland reclamation and land-use in the area; this provides both long-term landscape setting and interpretative context.

Mucking and the Prehistory of the Lower Thames
Timothy Champion

It is almost impossible, at this remove, to reconstruct the

Figure 6.4. Neolithic and Bronze Age phase plans (with settlement clusters indicated).

vision of British prehistory that prevailed in the early 1960s when the excavations at Mucking began. The archaeological record as then known was still dominated by isolated sites located in the uplands, predominantly the chalk downlands of southern England. The Royal Commission's publication, *A Matter of Time* (RCHME 1960) had recently highlighted the wealth of evidence available for human settlement in the river valleys, and especially on the gravels, though it would be several years before the full significance of this was realised and Christopher Taylor (Taylor 1972) coined the terms, the Zone of Survival and the Zone of Destruction. In Richard Bradley's words (Bradley 1992, 15), we were slowly 'discovering how unwise it is to assimilate the archaeology of the British lowlands to a pattern of development which is really defined around the evidence from upland areas'.

In river valleys elsewhere, the archaeological response focused on the entire valley, as in the Trent or the Nene; in the Thames valley activity was rather more diverse, with much excavation in advance of development in the Upper Thames, especially around Oxford, but more fragmented work in west London and in the estuary to the east of the capital. In many cases, as at Mucking, these projects strained the resources of contemporary archaeology; they were critical to the emergence of a structure of professional archaeology and year-round excavation, but problems of post-excavation analysis and publication were more difficult. In some cases it has been possible to synthesise the results of this and later activity, as in the Trent valley (Knight & Howard 2004) or the Middle and Upper Thames (Lambrick 2009; Morigi *et al.* 2011); in the Lower Thames,

however, the picture is gloomier. In west London, despite some important outcomes (e.g. Framework Archaeology 2006; 2010; Hayman *et al.* 2012), other sites await publication and we have no detailed synthesis; further east, Mucking stands out. At other locations, the archaeological response was less intense: at North Shoebury, for instance, partial and intermittent excavation in the 1970s and early 1980s salvaged something of the evidence for a very large area in advance of brickearth extraction and commercial development (Wymer & Brown 1995). The suburban expansion of London, the long history and prior extent of gravel and brickearth digging in the region, the constraints on terrestrial aggregate extraction and the pressure to find sites in other parts of the county have all contributed to making Mucking unique: archaeological interventions in southern Essex have been largely determined by much smaller-scale development proposals or road schemes (e.g. Wilkinson 1988; Carter 1998; Guttman & Last 2000). On the other side of the Thames in Kent, a coordinated archaeological response to development only emerged in the 1990s (Champion 2007a). Mineral workings were far less extensive than on the north bank of the Thames, and most investigations were on a much smaller scale, though infrastructure schemes such as HS1 (Booth *et al.* 2011), the A2 Improvement (Allen *et al.* 2012), the Monkton–Mount Pleasant road scheme (Bennett *et al.* 2008) and the East Kent Access Road (Oxford-Wessex excavations, publication forthcoming) have provided valuable, if narrow, linear transects; only the commercial greenhouse development at Thanet Earth, Monkton (see Table 6.5; Rady 2010), has given the opportunity for excavation on a comparable scale to Mucking. Though some summaries have been written on a county basis (Brown 1996; Holgate 1996; Sealey 1996; Champion 2007b & c), we still lack a synthesis of the prehistory of the Thames Estuary.

With the benefit of hindsight, we can see that Mucking foreshadowed many of the individual elements of the prehistoric archaeological record that would later become apparent in the archaeology of the Thames Estuary, though some of its elements, especially in the earlier part of the Iron Age, still remain unusual. It is important to remember, however, that the landscape explored at Mucking is not typical of the entire Lower Thames valley. The gravel terraces of the Thames are far more extensive to the north of the current course of the river, from the west London gravels around Heathrow through the city to much of south Essex. They are far less frequent to the south of the river; instead, the landscape is dominated by coastal lowlands rapidly giving way to the foothills of the chalk. Nevertheless, the extensive gravel and brickearth terraces of southern Essex offered a unique and attractive opportunity for settlement in the Lower Thames region, and their prehistory, and the prehistoric activity revealed by the Mucking excavations, need to be assessed in the context of the wider regional evidence that has subsequently emerged.

The Neolithic of the Thames Estuary is still not well explored or understood. The small pits typical of the Mucking evidence can be matched elsewhere in Essex (Hedges 1980, 27; Holgate 1996, 20) and east London (Lewis 2000, 68), though not in great numbers. Recent major projects in Kent, such as HS1 Phase 1 (Booth *et al.* 2011, 56–60) and the A2 Improvement (Allen *et al.* 2012, 97–8) have produced very little evidence for this period, though other interventions have been more informative: Neolithic pits were found at sites in the Darenth valley (Simmonds *et al.* 2011, 64–5 & 185–8), while other sites have long been known from the Ebbsfleet valley. It is possible that, in their routes across the chalk foothills of the North Downs, the road and rail schemes transected landscapes not heavily used in the Neolithic; the river valleys and the gravel and brickearth terraces may have been more regularly exploited. Changing sea-levels in the estuary and the changing configuration of the coast and the tributary valleys may have rendered more favoured landscapes more difficult to explore.

Perhaps the most important addition to our knowledge of the Neolithic since Mucking is the recognition of significant monuments in the estuary region, which allows the settlement evidence to be seen in a wider context, as in other parts of the country. Causewayed enclosures have been excavated at Orsett, to the west of Mucking and on rising ground just above the gravel terrace (Hedges & Buckley 1978), and on the other side of the Thames at Kingsborough in the Isle of Sheppey (Allen *et al.* 2008); they display a typical location for such monuments, in raised elevations with extensive views over the lowlands of the estuary. Further examples are also known further east on the Isle of Thanet, near Ramsgate (Dyson *et al.* 2000), where a probable cursus monument was also found. Though the picture is still only very partial, the Mucking pits no longer seem quite so isolated.

The distribution of round barrows in the Lower Thames region is best known from aerial photography, though variations in soil conditions may well be providing a biased picture of the true pattern. In south Essex the known ring-ditches cluster along the gravel terraces of the Thames (Holgate 1996, fig. 3), including those at Mucking. To the south of the river, there is a massive concentration of barrows on the chalk of east Kent and Thanet, with a much lower density in northwest Kent (Booth *et al.* 2011, fig. 3.52). Few have been excavated. The Whitehill barrow (*ibid*., 144–9) contained the inhumation of an adult, probably female, wearing a necklace of amber beads, the only sign of exotic goods so far discovered in the inner estuary region, in marked contrast to East Kent, where a significant cluster of gold, faience, jet and amber items have been found in burials and other deposits (Champion 2004). The burial at Rochford in Essex, originally found in 1914 (Erith 1963), with its amber and shale beads and fragmentary goldwork, remains an isolated outlier between the greater concentrations of exotics in East Kent and East Anglia.

The Mucking excavations were perhaps the first time that investigation in the river valleys of southeastern England had been on a large enough scale to recognise the ploughed-out evidence of organised landscape division in the later Bronze Age. Surviving earthwork boundaries had been studied in the downlands of Wessex and in Sussex, but the true extent of lowland systems was unappreciated. Mucking's Middle Bronze Age fieldsystem was one of the first to be recognised (Yates 2007, 22). Subsequent research has shown how widespread such fields were in the Lower Thames region, especially on the gravel terraces of the river and its tributaries (Yates 2007, 20–36). They have also been recognised in north Kent (Mudd 1994) and on the Isle of

Thanet (Barclay *et al.* 2011). The true significance of this phase of activity has yet to be fully debated, but the change in the organisation and visible appearance of the landscape, together with the introduction of new crops, can now be seen as part of what Stevens and Fuller (2012) have called the Bronze Age agricultural revolution, a process perhaps in the end more significant than the original introduction of agriculture in the Neolithic.

Traces of human occupation to accompany the fields, apart from the remarkable ringworks of the Late Bronze Age, proved to be rather insubstantial, a pattern that has also emerged elsewhere in the region. In southern Essex, Middle Bronze Age occupation at North Shoebury was characterised by small enclosures defined by shallow gullies set within the fields, containing clusters of pits; similarly slight evidence was found for Late Bronze Age activity (Wymer & Brown 1995). Evidence of Middle and Late Bronze Age activity discovered in northwest Kent during HS1 construction was typified by a landscape of small settlement clusters integrated into the fieldsystems, with few traces of distinctive structures (Booth *et al.* 2011, 209–11). Investigations on the neighbouring A2 Improvement suggested a more varied pattern, with small enclosures either partially defined or defined by features of disparate size and nature, with metalled trackways and a roundhouse (Allen *et al.* 2012, 100–8). Though some elements of this are not unlike the model of enclosures with 'one large circular living hut, one or two subsidiary huts, and storage structures' suggested by Ellison (1978) on the basis of evidence derived from the Sussex Downs and often taken as typical for the period (Brück 1999), the total picture is rather different and more varied. One obvious feature of these results from the Lower Thames region is the scarcity of clear evidence for roundhouses. This is a characteristic that will recur in later phases of the prehistory of the Lower Thames: it suggests that the earth-fast post-built roundhouse and the ring-ditch roundhouse, often taken as type fossils of the Iron Age, with antecedents back into the Middle Bronze Age (Hodson 1964; Harding 2009), may not have been as universal or continuous an element of later prehistory as we might imagine.

The ringworks, of course, were a revelation, and the changing identification of the South Rings as a henge, a mini-hillfort and finally a ringwork documents our developing knowledge of Late Bronze Age settlement patterns. The Mucking examples have stimulated the identification of possible parallels throughout eastern England, but subsequent work has made the picture more complicated. The distinctively circular enclosures with a regular pattern of internal structures seem to be a south Essex type, with other examples at Springfield Lyons (Brown & Medlycott 2013) and South Hornchurch (Guttman & Last 2000), though they have significant variations in detail of construction and internal occupation. They may, however, be a sub-set of a rather more varied group of important sites: circular enclosures had previously been explored at Queen Mary's Hospital, Carshalton, at the head of the Wandle valley (Robarts 1905; Adkins & Needham 1985), and at Mill Hill, Deal (Stebbing 1934; Champion 1980, 233–7) in east Kent, though they had attracted little attention, and more recently at Oliver Close Estate, Leyton, in the Lea valley (Powell 2012, 63), while rectangular versions have been investigated at Lofts Farm, Maldon (Brown 1988b) and at Highstead, Chislet (Bennett *et al.* 2007) in Kent. Other enclosures, such as those at Kingsborough Farm, Sheppey (Allen *et al.* 2008) may share a generic similarity of shape, but have had rather different functions.

One industry that was correctly identified at Mucking was salt production. Though some evidence of the salt industry in the Thames Estuary had been found since the mid nineteenth century (Barford 1990), its true significance had not always been recognised. The 'red hills' of Essex were well known as evidence for salt production, but they were dated to the Late Iron Age and the Roman period (Fawn *et al.* 1990), though recent evidence may suggest a somewhat earlier start (Biddulph 2012). Clear evidence for earlier prehistoric salt production was lacking until the work at Mucking, though it is now known from several sites on both sides of the estuary. As well as Mucking, there is good evidence for Late Bronze Age salt-working at South Hornchurch in Essex (Guttman & Last 2000), and at sites in northwest and northeast Kent (Booth *et al.* 2011, 216–18). Later production in the Early Iron Age is also known in northwest Kent (Allen *et al.* 2012). The precise organisation of the production activity is not yet well established, and some of the questions first raised by Margaret Jones are still unresolved: in particular the significance of the location of salt-working evidence at some distance from the sea, and the possibility of a complex, multi-stage operation.

If the Mucking excavations were the first to establish the basis of what would later be recognised as the settled landscape of the later Bronze Age in the Lower Thames, with fields and densely scattered settlement clusters, and more substantial enclosures of varied form and function emerging in the Late Bronze Age, they also produced evidence for the Iron Age that turned out to be more problematic. The evidence at Mucking was at first thought to be slight, and that seemed to match a pattern that eventually emerged throughout much of the Lower Thames region. There is a dearth of evidence for Early Iron Age activity in Essex (Brown 1996); sites were known in the North Shoebury area, but few elsewhere. This scarcity of evidence is matched throughout the Greater London district, where there is only a thin scatter of rather insubstantial sites (Wait & Cotton 2000, 105), and has also been noticed in parts of north Kent (Allen 2009). As has been described above, however, more detailed analysis of the structural sequence and the pottery has shown extensive evidence for continued occupation of the gravel terrace from the Late Bronze Age into the Early Iron Age, a pattern that can also be matched on the East London gravels (Howell *et al.* 2011). Different landscapes in the Thames Estuary region clearly had rather different occupation histories during the first millennium BC.

A number of different factors contribute to this picture of regional variability: the changing and variable usage of the areas covered by the fieldsystems of the later Bronze Age; the changing nature of settlement types and organisation; and the changing preference for the location of major settlement sites. Many of the landscapes with Bronze Age fields in the Lower Thames region, and perhaps more widely, show little evidence for intense activity in the earlier part of the Iron Age. That does not mean, however, that the whole area was abandoned: chronology is provided by pottery and other material in the ditch fills, and that

dates the last phase of activity before the final re-cut, not the final usage of the land between the ditches. It is quite possible that many of the fields continued in use, perhaps marked by banks and hedges, but used in a way that did not require clearance and re-cutting of the ditch or leave much in the way of settlement features. That certainly seems to have been the case at Heathrow Terminal 5, as suggested by the discovery of hedge plant remains and the location of the Middle Iron Age site, respecting the earlier fields (Framework Archaeology 2010, 206–10 & 225). Elsewhere, especially on the gravel terraces north of the river as at Mucking, there was much denser occupation, with repeated episodes of land division and enclosure.

The Early Iron Age of the region north of the Thames, including London and southern Essex, is still obscure, despite the evidence that is now emerging from Mucking and the east London gravels. The concentration of Early Iron Age occupation on the gravel terraces may match the pattern that is beginning to emerge in Kent, where it is becoming clear that settlement sites of this time were rather more clustered than in previous periods and also located in different areas. Settlement of the Early Iron Age has been identified particularly on the chalk of northwestern Kent and the Isle of Thanet: if it was more widespread on the chalk lands, as perhaps suggested by finds from the A2 east of Canterbury (Macpherson-Grant 1980) and finds from around Dover and Deal (Jarman 2010), it has not been adequately explored because of a comparative lack of recent development threats. Though some of this evidence, comprising pits and postholes, four-post granaries but few signs of any roundhouses, suggests a continued pattern of small-scale but perhaps closely spaced settlement, as along the A2 in northwest Kent, elsewhere there are signs of much larger clusterings, as at White Horse Stone (Booth *et al.* 2011, 197–200 & 207–8) or Thanet Earth (Rady 2010). Whether these settlement trends of relocation, concentration and clustering turn out to be more widespread in the Lower Thames region remains to be seen, as also does the nature of the society that occupied them. When Jope was discussing the origin of the daggers found in the Thames, he talked of the 'an aristocracy based on the Thames valley from the 6th to the 4th centuries BC' (Jope 1961, 325); so far, however, these aristocrats have proved very elusive.

The Middle Iron Age phase at Mucking, marked by a very large number of roundhouses with ring gullies, is still the largest site of this period in the Lower Thames region. The best parallels would be with other sites on the north side of the Thames, such as the settlements of the west London gravels best exemplified by that at Terminal 5 (Framework Archaeology 2010, 233–58), or at Uphall Camp in east London, though there the settlement is surrounded by a bank and ditch (Greenwood 1989). Further afield, it is best associated with the 'open villages' or 'agglomerated settlements' that were the dominant settlement form of the Middle Iron Age further north in eastern England (Hill 2007). Such sites are, as yet, unknown in Kent. Even the ring-groove roundhouses that are such a regular element of these settlements are rare in Kent: perhaps the only real parallel is from the very north coast of the county, in the Isle of Grain (Philp 2002, 139 & fig. 33.2). Although for most of prehistory the cultural affinities of Kent seem to lie further north beyond the Thames, rather than westwards with Surrey and Sussex, in this case the evidence does not yet show Kent adopting the typical settlement strategies of eastern England in the Middle Iron Age.

One distinctive element of the Middle Iron Age settlement was the Northern Enclosure. Though other enclosures are known in the Lower Thames region, as at Terminal 5 (Framework Archaeology 2010, 254–6), the Mucking enclosure stands out for its finds assemblage; the evidence for textile production and ironworking may be matched elsewhere, but the collection of bronze artefacts, especially the decorated belt fitting, is very unusual. Decorated metalwork of the Iron Age is rare in the Thames Estuary area, and its presence here suggests that the site was one of considerable local importance.

After the comparative abundance of the evidence of the Middle Iron Age, the Late Iron Age archaeology of the Lower Thames region reverts to the earlier pattern of obscurity. Traditional perceptions of the period have concentrated on the adoption of a new burial rite of cremation, including a limited number of much richer burials, with a particular focus on the emergence of the *oppidum* at Colchester and the Welwyn-type burials of the Essex/Cambridgeshire/Hertfordshire region. Southern Essex and north Kent, lacking *oppida* and rich burials, have been seen as peripheral to this process. Recent reconsideration of the coin history of Kent, largely based on the rapid increase in the number of reported metal-detector finds, suggests a different story, with the indigenous production of the Kentish Primary and Flat Linear I series of potin coins starting in the second half of the second century BC (Holman 2000). The coins are particularly frequent on a group of sites, some of which were coastal: at sites such as Worth, Sandwich and Ebbsfleet (Holman 2005) limited excavation has produced imported finewares and amphorae, with the earliest perhaps dating to the second century BC. The recognition of this process paradoxically makes west Kent, south Essex and the inner estuary even more peripheral, to both East Kent and north Essex developments.

There is little detailed settlement evidence to add to that from Mucking. In Essex the Orsett 'Cock' multiple-ditched enclosure (Carter 1998) suggests a renewed interest in defended sites in prominent locations, but stands somewhat in isolation. In north Kent, on the HS1 (Booth *et al.* 2011, 264–70) and A2 Improvement scheme sites (Allen *et al.* 2012, 312–14), there seems to have been a renewed phase of landscape division and settlement enclosure, though the details were difficult to discern in the narrow corridors available for excavation, and the main settlement areas may have lain just outside. Apart from the recognition of the Late Iron Age origin of the ritual site at Springhead in the Ebbsfleet valley (Andrews *et al.* 2011), perhaps the most significant discovery has been that of two rich cremation burials on the A2 scheme, dating to the end of the first century BC or the early part of the first century AD (Allen *et al.* 2012, 288–302 & 314–17). Such high-status burials, occurring in an area where there had been few previous indications of the cremation tradition or imported fine ceramics and metalwork, will require detailed reconsideration of the status of the inner estuary region in the Late Iron Age.

Romano-British

The Romano-British settlement at Mucking saw continuous development from the later Iron Age, with intensive occupation in evidence until at least the middle of the third century AD. Consisting of a series of well defined enclosures with associated structures and wells, five discrete cemetery areas and industrial features linked with pottery production (Fig. 6.5), the site has a rich artefactual record that can be used to interrogate its role and significance. It should be noted that the chronology of the settlement offered here largely concurs with that published by Going (in Clark 1993); however, following the more detailed analysis of the archive that has been possible during this phase of the project, that of the cemeteries differs considerably.

The settlement sequence has been divided into three main phases: 1) from the mid first to early second century; 2) from the mid second to early third century, and Phase 3, from the mid third century onwards. The Phase 1 layout of the site closely referenced both the later Iron Age and Conquest Period activity. This is seen through its common alignment with the rows of raised granaries, The Plaza's fenced area and the later Iron Age square barrows, as well

Figure 6.5. Iron Age and Roman phase plans.

Figure 6.6. Roman Highlights: left, Cremation 902 (with five accompanying vessels and, below, an eagle-headed finial); right, Cremation 911 accompanied by 11 lamps, eight platters, three tazze *and five beakers (plus nine coins; details of lamps and* tazze, *below).*

as the large enclosure RBI, which clearly influenced the Phase 1 ditched layout. As outlined in Chapter Four (see *The Conquest Period and Early Roman Landscape*), the settlement may have been organised around a cross-roads: a route along the eastern terrace-edge and, in the south, a 'way' that might have led down to quay facilities beside a tidal creek linked to the Thames (see Figs 4.86–7).

The focal point of Phase 1 appears to have been a large rectangular ditched enclosure with an internal bank, the Central Enclosure (aka the Double Ditch Enclosure), that encompassed The Plaza-area in its northwest quadrant and was divided by a number of internal ditches (see Fig. 6.25 below). Within its main portion was an aisled barn (Str. 2), a trench-built/-carried granary (Str. 1) and a large apsidal-ended building, Structure 7 (see Figs 6.22 & 6.26 below). The complex's water supply was provided by a major well (No. 4; see Fig. 6.23 below) and, taken as a whole, it is thought to have been some form of 'official' residence. The Plaza's fenced ground was locally reset; although this was interpreted as a possible garden by Going, this is no longer considered feasible now that its preceding Iron Age ceremonial/ritual usage has been appreciated.

Also in use at this time were the Western Enclosure-area, a series of remnant curvilinear and open-sided rectangular enclosures whose predecessors seem to have been a focus of later Iron Age pottery production at Mucking, and the Southern Enclosures, which were newly laid out in this phase, in reference to Conquest-phase enclosures and RBI. RBI saw further ditched elaboration during Phase 1, and was obviously still an extant landscape feature at this point. Both the western and southern areas were associated with a number of early kilns producing mainly shell-tempered ledge-rimmed jars, some of which carried graffiti marks of a quasi-numerical nature. The purpose of this characteristic jar type is still not clear, but they were presumably manufactured in order to transport a commodity of some kind. Buildings associated with the Phase 1 activity in the southern and western areas encompass a range of types, from four-posters associated with surrounding ring-gullies, and perhaps slighter posthole or beam-slot structures. The pottery assemblages suggest a society still closely tied into later Iron Age modes of eating and drinking, with an emphasis particularly on the latter, but with the adoption of some elements of a more Romanised culture. Other hints of this come from the introduction of urned cremation as a burial rite, seen in RB Cemetery I during this phase (the burial area itself making use of a later Iron Age enclosure), although RB Cemetery V, with its use of inhumation burial into this period, suggests this rite was not exclusive.

Phase 2 saw the elaboration of the Central Enclosure, with the cutting of a new perimeter ditch to echo the first. Structures within the enclosure variously saw renewal or replacement. The main well, Number 4, continued in use before seeing a dramatic episode of closure towards the end of this phase, when it received large parts of the fabric and contents of a building that had been destroyed by fire. The pottery, metalwork and other items from the burnt assemblage indicate a household of some note, with

plentiful access to Roman finewares, including samian, although parts of this pottery assemblage may have been decades old when consumed in the fire (see Fig. 6.21 below). The identity of this destroyed building remains uncertain, but it may have been the apsidal-ended building Structure 7 (see Fig. 6.22 below).

In Phase 2 the Western Enclosures had largely gone out of use, although Cemetery I further to the southwest remained the main burial area, but with the main rite now inhumation rather than cremation. Three further cemetery areas also came into use in this phase, perhaps suggesting elaboration of the social hierarchy of the inhabitants. Cemetery II was apparently of the highest status, employing both cremation and inhumation, and lying due south of the largely empty fenced area in the Central Enclosure (i.e. The Plaza). It lay directly over one of the later Iron Age square barrow ranges and may indicate that the memory of this as a burial area had been retained. Cremations in Cemetery II typically employed multiple vessels as grave-goods, and one unusual deposit – with lamps, *tazzae* and other vessels – may represent the remains of a funerary feast or ritual offering (Fig. 6.6; see also Fig. 6.21 below). Cemetery III, to the northwest of the Central Enclosure, also saw cremation employed during this phase (as well as less convincingly dated inhumations), while Cemetery IV on the eastern side of the settlement was composed solely of cremations, several of which used other vessels as lids for the cremation vessels.

In Phase 2 the Southern Enclosures saw the most intensive craft activity, with a number of associated structures, as well as the erection of several larger kilns, producing a variety of grey ware forms. The settlement appears to have played a significant role in the contemporary Thames-side pottery industry, which is also in evidence in north Kent and whose products have been found as far north as Hadrian's Wall (see Roman volume). Given the social differentiation seen within the cemeteries at this time, as well as the higher status household evidenced by the remains in the Well 4 destruction assemblage, it could be that Romano-British Mucking should be seen as a nascent estate centre or similar. There is little extant evidence of agricultural production, largely due to the low levels of organic preservation at the site, but evidence for malting floors (in the form of 'corn-driers') and some faunal evidence suggests a mixed economy.

The Phase 3 usage, from the mid third century onwards, is more obscure and harder to identify. The pottery industry was apparently in decline from around AD 250, with smaller amounts of pottery produced after this point (contra Jones & Rodwell 1973). Imports to the site also seem to have gone into steep decline, although there is a certain amount of pottery of later fourth-century date. There are no structures that can be firmly assigned to this phase and instead, the only features that can be are gradually infilling ditches. When the later Roman pottery and coinage assemblages are analysed by distribution, it is striking how a high proportion come from features that also contain Early Anglo-Saxon pottery (Fig. 6.7). The possibility must be seriously entertained that the apparently late fourth-century Romano-British pottery in these assemblages actually related to the subsequent usage of the site that has always been thought of as Anglo-Saxon (and, in which case, this transitional horizon could be considered as the site's Roman Phase 4; see below).

In terms of burial, again very little can be assigned to this terminal phase. Possibly a few of the inhumations in Cemetery I belong to it (e.g. those with multiple-motif bracelets are typically dated to the later fourth century, although one or two examples at Mucking appear to have earlier dating pottery); the later fourth-century stone coffin burial inserted into the now disused Cemetery IV might also suggest a retained memory of burial areas, and some of the burials within Anglo-Saxon Cemetery II may also be of late fourth- or early fifth-century date. Overall, however, the impression is of a settlement in decline through the later half of the third century AD, with declining amounts of evidence for early fourth-century activity, until the later decades of that century. It may be that the focus of settlement had shifted off the top of the gravel terrace, and away from the area of excavation. Alternatively, it is possible that soil exhaustion had played a part in the decline of this as a viable settlement area. The late fourth or early fifth century saw renewed activity on the hilltop, however.

Finally, contrary to what Margaret Jones originally thought, *there was no Roman villa at Mucking*. There are indications of higher status activity, particularly in the second century, but the site then entered a period of decline, perhaps in line with the development of other settlements in the region.

Anglo-Saxon

Decades on from its excavation, Anglo-Saxon Mucking remains one of the most important and influential sites for the interpretation of this period. Its structure and dating continues to be much debated, and it is still the largest collection of *Grubenhäuser* to be found in Britain. When set alongside its two cemetery areas, plus other posthole buildings and Anglo-Saxon features, it still offers great analytical potential (Fig. 6.7). Opinion as to its start date remains divided, and will be discussed further below, but occupation of the settlement continued until the end of the seventh century, and possibly beyond (the two sherds of Ipswich Ware suggest the latter, as this is now dated to AD 725 and later); the cemetery areas appear, however, to have gone out of use earlier. In total, there were 203 *Grubenhäuser* and at least 57 posthole buildings, together with the extensive Cemetery I (276 inhumation graves and 463 cremations) and the smaller Cemetery II (up to 63 graves associated).

The settlement site was published by Hamerow (1993), but it should be recognised that this volume was largely based on her PhD research, which was primarily a study of Anglo-Saxon pottery from the *Grubenhäuser*, and its focus on these features reflects this emphasis. Hamerow employed data recorded by MPX (with considerable cleaning and refining of that data) to explore the chronology and development of the site, as reflected in the fills of the *Grubenhäuser*. The publication has correspondingly less attention placed on the treatment of other buildings and features, and on categories of artefacts other than pottery.

Hamerow (1993, 1) points out that initial interpretations of the site (e.g. Jones *et al*. 1968, 226–7; Evison 1981, 141–2) suggested that a substantial settlement of Germanic

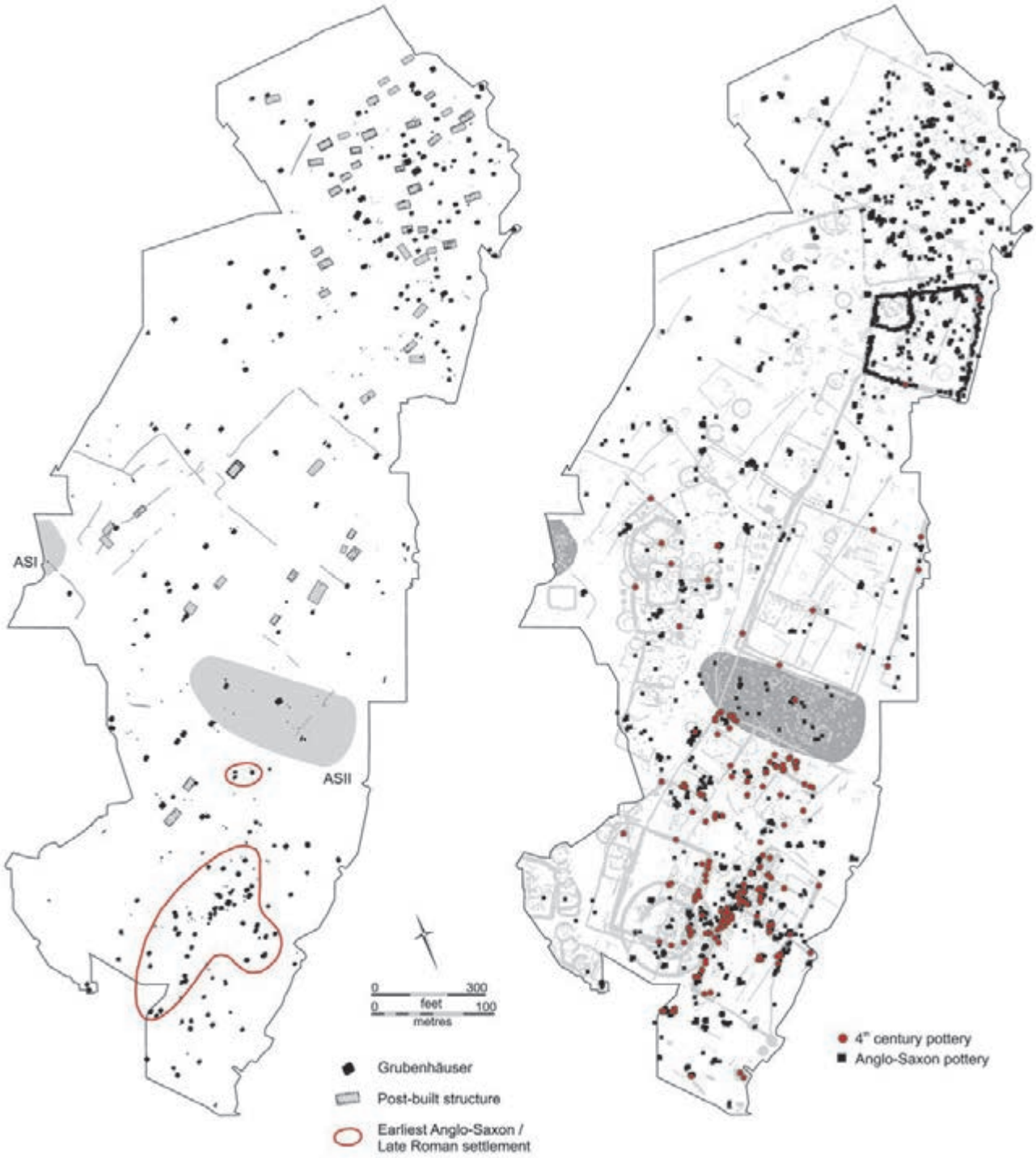


Figure 6.7. Anglo-Saxon phase plan (left) and, right, distribution of Anglo-Saxon and Late Roman pottery.

mercenaries – *foederati* – had been stationed at Mucking in the late fourth or fifth century for the purposes of defending London against invasion via the Thames Estuary. She noted that such interpretations rested on certain historical assumptions and on the presumed early date and military affiliations of certain types of Late Roman metalwork, the use of 'quoit brooch style' decoration, 'Romano-Saxon' pottery and other pot types, but that those had since come under serious criticism. Later interpretations, such as her own, moved away from such explicitly historicist frameworks, in favour of analysing the settlement on its own terms.

Hamerow's analysis suggested that an initial settlement core lay to the south of the cemeteries in the fifth century; this was relatively dense and consisted of around 77 *Grubenhäuser* and at least two posthole buildings. In the sixth century this shifted northwards, in the form of a smaller phase of around 13 *Grubenhäuser* and eight posthole buildings. The third phase of the settlement shifted further again to the northeast; this was again relatively dense

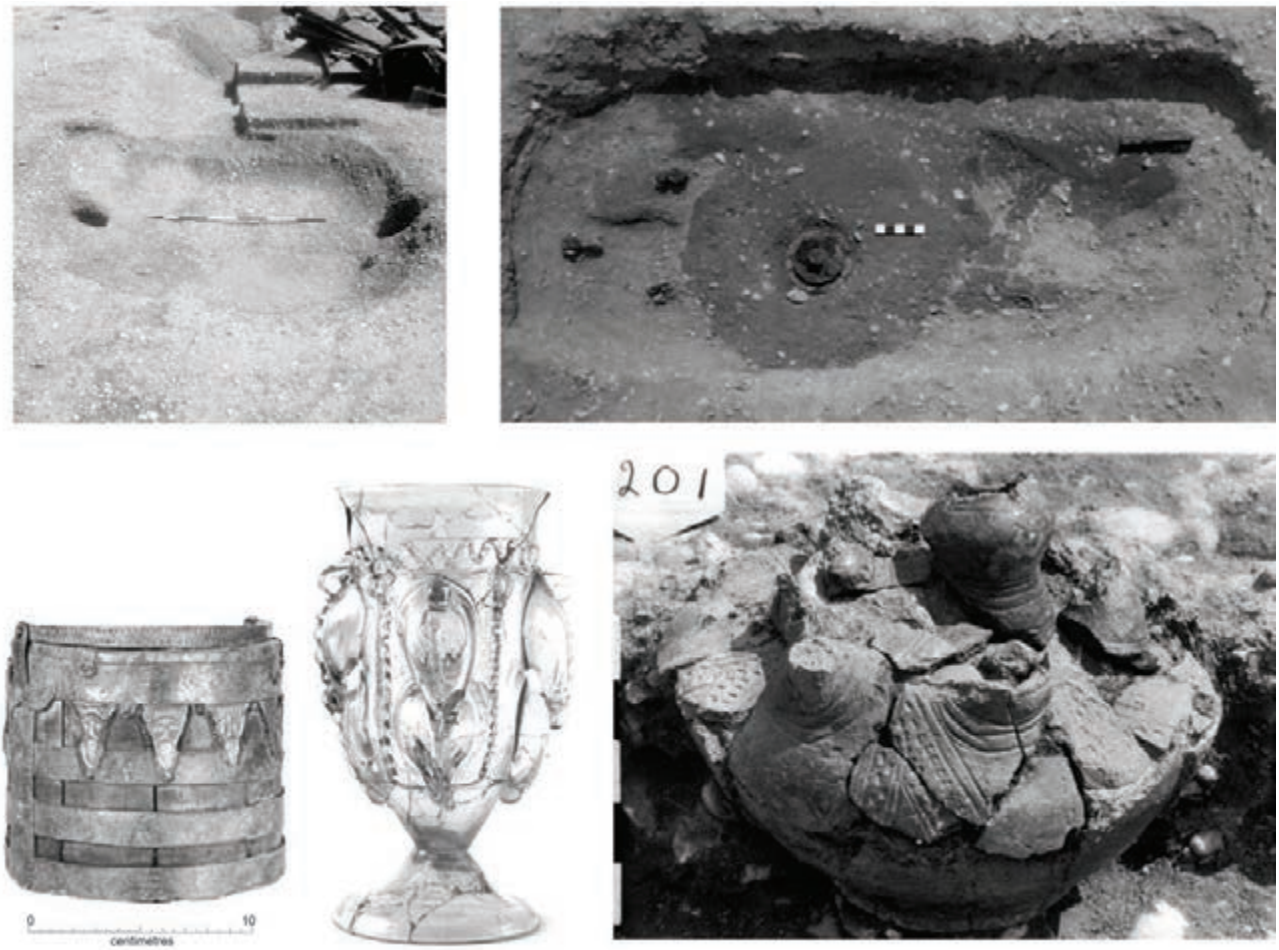


Figure 6.8. Anglo-Saxon Highlights: upper left, Grubenhaus *127 cutting the North Enclosure; upper right, Grave 204 with shield stain; lower left, stave-built bucket (Grave 602/2) and glass claw vessel (Grave 843/1); lower right, Cremation 201 (Hirst & Clark 2009, figs. 295, 297, 336 & 379; upper left, T. Jones).*

with around 55 *Grubenhäuser* and 20 posthole buildings. The seventh century saw a shift of settlement away from the edge of the terrace, into a series of widely dispersed farmsteads (with some 54 *Grubenhäuser* and 23 posthole buildings). In all phases, groups of farmsteads were thought to lie together, with no well-defined property boundaries, and without strict planning. There were no large or 'central' buildings, although it seemed clear from the cemetery evidence that certain individuals possessed wealth and positions in a social hierarchy. Hamerow argued that Mucking was best considered as a shifting hamlet, perhaps more than one at times (1993, 91 & 314): a 'wandering settlement' as seen in other parts of northwest Europe, but that its inhabitants continued to use their ancestral burial grounds for three centuries; this was thought to perhaps indicate that they were operating within a defined territorial unit.

A subsequent PhD by Jess Tipper (published as Tipper 2004), while focusing primarily on the nature of *Grubenhäuser* fills, also conducted analyses of Mucking's pottery in order to debate the issue of the site's form and chronological development. He argued that much of the material in *Grubenhäuser* fills was the result of tertiary deposition (from intermediate surface dumps after the original building was demolished). Identification of sherd joins highlighted that rubbish could travel considerable distances across a site, and that except for occasional primary disposals, the assemblages in feature fills have no direct relationship with the function or date of the original structure. Although somewhat critical of Hamerow's treatment of the Anglo-Saxon pottery (although this was not recorded by her), Tipper mainly used the same data in his own work, although he did record afresh the pottery from 29 *Grubenhäuser* in order to conduct a more detailed study of formation processes.

Hamerow (1993, 31 and figs. 14–20) had demonstrated significant differences in the pottery assemblages across the site. In general, those *Grubenhäuse*r with fifth- and sixth-century objects within their fills had a higher proportion of sand-tempered sherds within them than those with seventh-century objects (which saw higher proportions of grass-tempered pottery). Hamerow used this patterning in her argument about the shifting nature of the settlement, as she identified a marked increase in the use of grass-tempered pottery in the northern and western areas of the settlement during the sixth and seventh centuries (Hamerow 1993, 31, figs. 15, 27). The sandy fabrics, in contrast, predominated in the southern part, and in *Grubenhäuser* of fifth- and

sixth-century date, although she noted that these patterns were not absolute.

Tipper's analysis drew on the same data-set, plus his detailed analysis of a smaller sample of *Grubenhäuser*, and consideration of aerial photographic material. He argued that the settlement extended some 80m further to the west, where cropmarks of 10–20 possible *Grubenhäuser*, ditches and other features were visible (this 2ha-area had been destroyed before the start of excavations). He also suggested that the site extended further to the south (where 3ha had been quarried away before excavations started, on the south side of the East Tilbury Road); remains of *Grubenhäuser* had already been reported at the Linford Site in this area (Barton 1962). Tipper argued that (*contra* Hamerow 1993, 8, 86, 93–4) large numbers of posthole buildings had not been missed in the southern area of the site due to low standards of excavation and/or heavy machine stripping, but that instead this area may have represented a craft/industrial focus, as is now evidenced at West Heslerton.

Nevertheless, Tipper showed that while the general distributions of pottery suggested by Hamerow still held (i.e. sand-tempered pottery to the south of the site and grass-tempered to the north), that there was more complex patterning. Tipper put forward an alternative theory of the site's development (2004, 52): two settlements or clusters of settlement at opposite ends of the site, occupied at the same time. The earliest occupation still lay at the southern end, but rather than a gradual shift to the north, instead the site saw a second settlement core develop at the northern end of the site during the sixth century, possibly as the community expanded. Tipper thus suggested the existence of two contemporary and stable settlement nuclei on the terrace during the sixth and seventh centuries, separated by the two cemeteries. He put forward as corroborating evidence the almost uniform alignment of buildings and the evidence of repair and rebuilding seen in many of the *Grubenhäuser* (for example with the presence of successive gable posts). Many of the interpretive differences between Hamerow and Tipper rest on whether the *Grubenhäuser* had suspended floors or not, with Tipper being a strong advocate of the former and Hamerow of the latter.

Regardless of the conclusions as to the chronological development of the site, there are also issues over its start date. Initial interpretations, such as those of Jones and Evison, suggested a very early start date for the occupation and burial sequence; perhaps even as early as the late fourth century, based on the presence of late Roman military belt-fittings in both graves and settlement features, as well as chronologically early brooch and pottery types. Subsequent authors, however, settled on a later date around the middle of the fifth century (in line with those put forward for most other early Anglo-Saxon settlements). This is something that has now been more clearly addressed by the recent publication by Sue Hirst and Dido Clark of the Anglo-Saxon cemeteries (Hirst & Clark 2009), where a small number of graves are clearly assigned to the early to mid-fifth century. The most convincing examples are the two graves with late Roman military belt-sets, Grave 117 in Cemetery I and Grave 979 in Cemetery II. The latter also contained an early type of spearhead and a penannular brooch worn singly on the chest; the same grave-goods are also found with Grave 789, which is also thought to date to this very early phase. Within the female-associated graves were a small number which could also date to the very early fifth century: Grave 100 in Cemetery I, with an early brooch form, and Graves 875, 987 and 989 in Cemetery II, all of which have either early brooch and/or buckle forms; Grave 631 with its bracelet assemblage and Grave 823 with its belt-set would also not look out of place in this early group. The two cremations with zoomorphic bone combs, 813 and 945, and one of those with a needle, 519, may well also be of this date. Obviously several of the less well furnished inhumation and cremation graves will also belong to this phase, but cannot be confidently assigned using the grave-goods alone (unfurnished Grave 986, for example, is cut by 987 and must pre-date it).

It is interesting that faceted carinated pottery was not used for cremations, as there are several examples of this in early phases at Spong Hill (Hills & Lucy 2013), but that it seems to be largely restricted to settlement features (Hamerow 1993, 314); although, one is found as an accessory vessel in Grave 989. Given that the earliest phased burials at Mucking are inhumations, could it be that cremation is a slightly later burial practice here – might this account for the greater incidence of bossed pottery in the cremations?

Taken together with the revised chronology for the major cremation cemetery at Spong Hill (Hills & Lucy 2013), which clearly demonstrated a cremation burial sequence starting in the early fifth century, the start of occupation at Mucking can perhaps once again be brought forward to the first few decades of the fifth century if not into the late fourth century. It should be noted that we are not thereby suggesting major continuity of occupation at Mucking from the Romano-British period into the fifth century; as noted above, the Romano-British site appears to have gone out of any substantive use by the later third century. This earlier dating for the Anglo-Saxon settlement may, however, give a better context for the very late Roman pottery wares found largely in features of early Anglo-Saxon date at Mucking. These Romano-British pottery assemblages are largely in *Grubenhäuser* fills or ditch fills with high proportions of sand-tempered pottery. It may be that we are starting to finally identify a very late fourth-/early fifth-century material assemblage – one that employed burnished and particularly carinated handmade pottery alongside later Romano-British wheel-thrown wares of particular types, particularly Much Hadham and Portchester D wares.

Reflecting on the potential significance of this re-dating is also interesting. It perhaps should be done in conjunction with the distribution plot of the latest Roman pottery, which abuts quite clearly on the enclosure apparently 'reserved' for Anglo-Saxon Cemetery II (Fig. 6.7). If burial activity did in fact start in this area in the very early fifth century (when this pottery is assumed to have still been in use), then the apparent enclosure of the burials in this area does not look so surprising. This dating may also make more sense of the stone coffin burial that had been inserted into the earlier RB Cemetery IV, which is dated to the late fourth century by its glass vessel. With 'Anglo-Saxon' burials such as Grave 631 – which would not look out of place in a later Roman cemetery – and potentially a few of the inhumation burials in RB Cemetery I also dating to the fourth century, there might be continuation, not of settlement at Mucking, but of burial activity, at least in a limited and intermittent form.

How one interprets the restarting of occupation at Mucking in the decades around AD 400 remains unresolved. One could, of course, revert to the traditional interpretations within a historicist framework (see Hills 1979 for a detailed critique of these), and resurrect the *foederati/laeti* explanation. However, given that direct equations of material culture with ethnic identity are now regarded as being rather simplistic, in what was clearly a very complex societal development, perhaps other scenarios should be entertained. The transition from 'Roman Britain' to 'Anglo-Saxon England' was a long one, that may even have started before the former officially ended, with the development of new power structures in certain areas in the fourth century. The transition from a state-controlled infrastructure to one organised more by individual force of personality is one that could be usefully explored through the burial and settlement evidence now documented at Mucking and other sites. That the very earliest fifth-century graves on the site drew directly on later Roman forms both of burial and of material culture, suggest a familiarity with these ways of life. While this could arise from the employment of the belt-set-wearing individuals within the later Roman army, it could also represent ambitious individuals who deliberately employed these symbols of the later Roman state in burial rites (alongside the non-Roman inclusion of weapons), and presumably also in life. This might represent a more gradual transition to the new societies that we see emerging in eastern England through the fifth century than we have previously imagined.

The main shortcoming with such a 'transitional identities' argument is that the nearby Stanford Wharf Site had the same range of Late Roman wares as Mucking, but was without any accompanying Anglo-Saxon occupation (Biddulph *et al*. 2012, 159), suggesting different roles and perhaps trajectories for the two sites. While this issue is dealt in greater detail in the Roman volume, its resolution will have to await future researchers.

The analytical potential of the site certainly remains high. Although the Anglo-Saxon period is not a focus of either of these two volumes, as part of the data retrieval exercise computer files relating to the Anglo-Saxon material and features are now more fully available, and can be combined with records of other artefactual material recovered from the fills of Anglo-Saxon features. It is now possible to identify more clearly which pits and ditches belong to the Anglo-Saxon phase, as well as investigate the preserved ground surface in the area of the North Enclosure. Anglo-Saxon Mucking still has a lot to offer, especially in combination with the new chronological frameworks (for both ends of the period) that are now available, and in light of more nuanced historical frameworks for the Roman–Anglo-Saxon transition.

Medieval and Post-Medieval

With cropmarks and excavated features spanning the Neolithic to Anglo-Saxon periods, it is unsurprising that any later period archaeology was relegated to the wings and, although Medieval pottery was recovered from the site, it was not recorded to the same degree and detail as artefacts from earlier periods (though this was eventually intended). Yet, within the confines of the quarry workings, and clearly referenced on aerial photographs of the site, there were a number of Medieval and post-Medieval features, mainly old field boundaries and track-side ditches relating to the area's former agricultural landscape (Fig. 6.9).

Of note, was the discovery of a Medieval sunk post-mill. Reported by Tom Jones in *Panorama* 23 (1979a) and *Aerial Archaeology* (1979b), this was first observed as a 'curious crop mark shaped like a cross' – referred to in the excavation notes as *The Cross* (Notebook 236) – on an aerial photograph taken in 1961 by J.K. St. Joseph (1964). Clearly different to other features, its excavation took place in 1973 and revealed the deep foundation trenches (1.65m deep) for the cross-beams; the timbers, bedded in clay and *c.* 6.75m in length, were presumably removed at a later date (Fig. 6.9). Recovered from the backfill was a small quantity of Medieval pottery (mid fifteenth century) and tile, as well as artefacts from disturbed Anglo-Saxon burials. As no other Medieval structures were present, it is reasonable to regard the Medieval pottery that was otherwise recovered as almost certainly deriving from manuring activities.

It is clear from the Tithe Map of 1846 (Essex Records Office ref: D/P 108/27/2) that the field boundaries represented on this map had their origins in the Medieval period. These ran roughly parallel to and down from the main axis of the ridge on which the site is located and show some coincidence with the fragmentary putative Anglo-Saxon fieldsystem identified by Tipper (2004). With the exception of the windmill, it thus seems there was no obvious archaeological evidence that demonstrated any continuity between the settlement's Anglo-Saxon phase and the fifteenth century.

Connecting the earlier Medieval landscape through to the post-Medieval period is challenging. The tithe map hints at potential continuity between some field boundaries and hedge-lines that have their origin in the late Anglo-Saxon period (including a way down to Mucking Creek). As Hamerow has suggested (1993), and as reiterated by Hirst and Clark (2009), Mucking was ideally placed in the Early Medieval period where trade along the Thames and the north–south trade between Essex and north Kent could be exploited, with a probable ancient route and ferry across the Thames nearby (on the suggested line of a Roman road and ford effectively connecting Chelmsford with Rochester, with the only Medieval ferry below Gravesend recorded at East Tilbury, *c.* 4km west of Mucking, documented from the thirteenth century; Fig. 6.10; Hirst & Clark 2009, 442). Despite its location near to these routes and the Thames, the settlement was abandoned in the seventh or eighth centuries, with the area reverting to agriculture, and the later 'fieldsystem probably developing out of the seventh to eighth century enclosures' (*ibid*., 444).

Persisting intact, at least to some extent, to be mapped in the mid 1800s, the fieldsystem underwent at least two changes from the eighteenth century onwards. An examination of the cartographic record shows that, prior to the Ordnance Survey of the 1860–90s, the area was divided into smaller fields and reflects field plots that were assessable for tithes. Combining the archaeological results with the tithe map of the area also reveals that several field boundaries were, in all probability, relatively shallow, with only the major field boundaries surviving as hedge-lines. Along the southern margin of the excavation evidence for strip-farming/ridge and furrow was also evident.

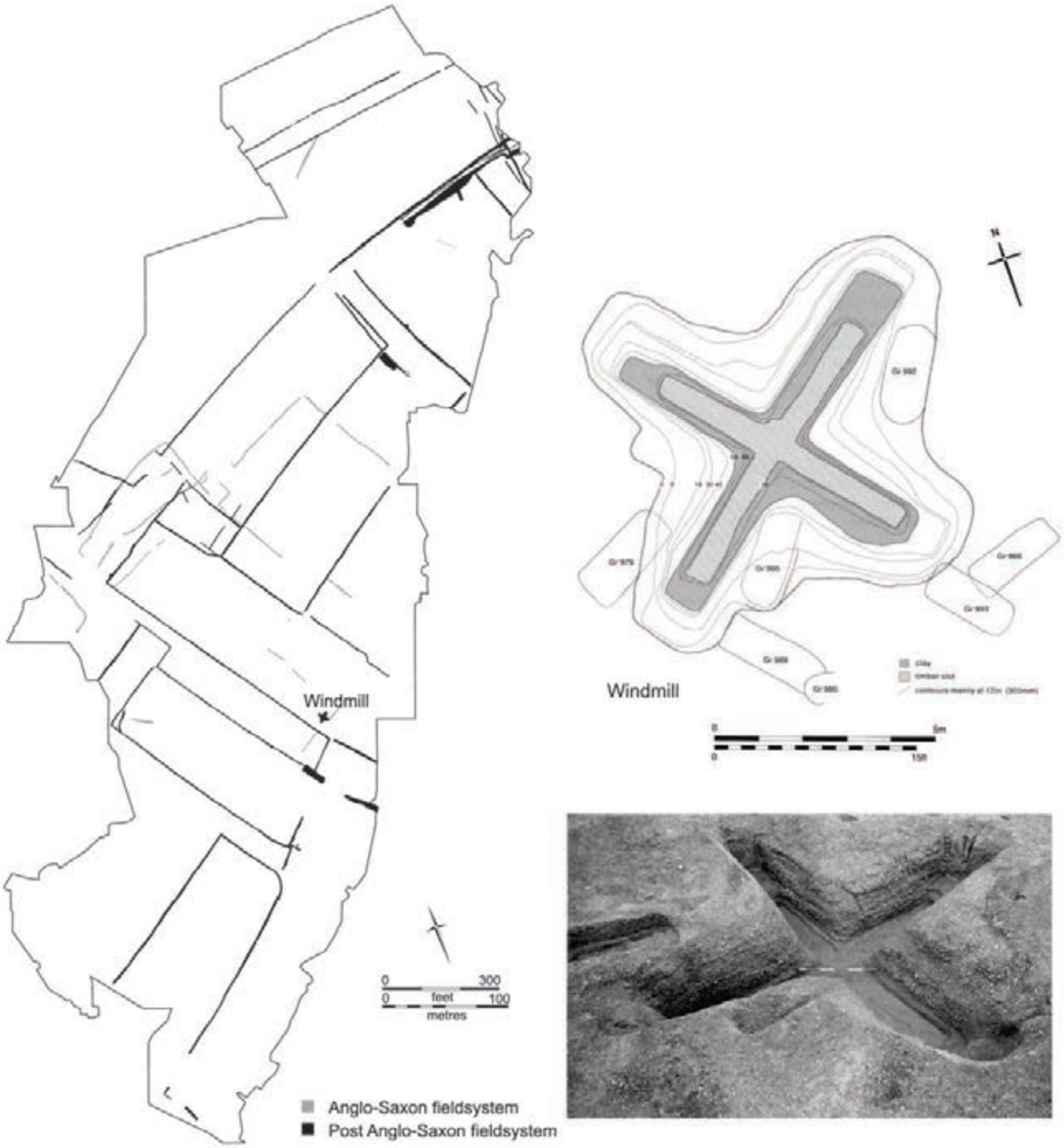


Figure 6.9. Medieval/post-Medieval phase plan (left; with possible Anglo-Saxon fieldsystem also indicated) and, right, Medieval windmill setting (see also Hirst & Clark 2009, fig. 236).

Despite the limitations imposed by the fieldwork conditions, over 10 major field blocks were clearly identified and, oriented roughly along the spine of the gravel ridge, these arced in a slight southwest–northeast direction (thus partially mirroring the Middle Bronze Age and Romano-British fieldsystems). During the earlier part of the 1800s, these blocks, and their internal sub-divisions, were consolidated into larger units, with a particularly large block created in the south. Recorded on the 1880s OS maps of the area, the site was 'encompassed' within three large fields. These later field divisions persisted until the 1960s, when large-scale gravel extraction commenced.

Modern features were also investigated, even when known to be of that date, on the grounds that they might yield residual earlier pottery. This apparently included sheep burial pits whose corpses had been set fired, and – resonating with the pattern of anti-glider trenches on Figure 6.31's Luftwaffe aerial image – WWII bomb craters.

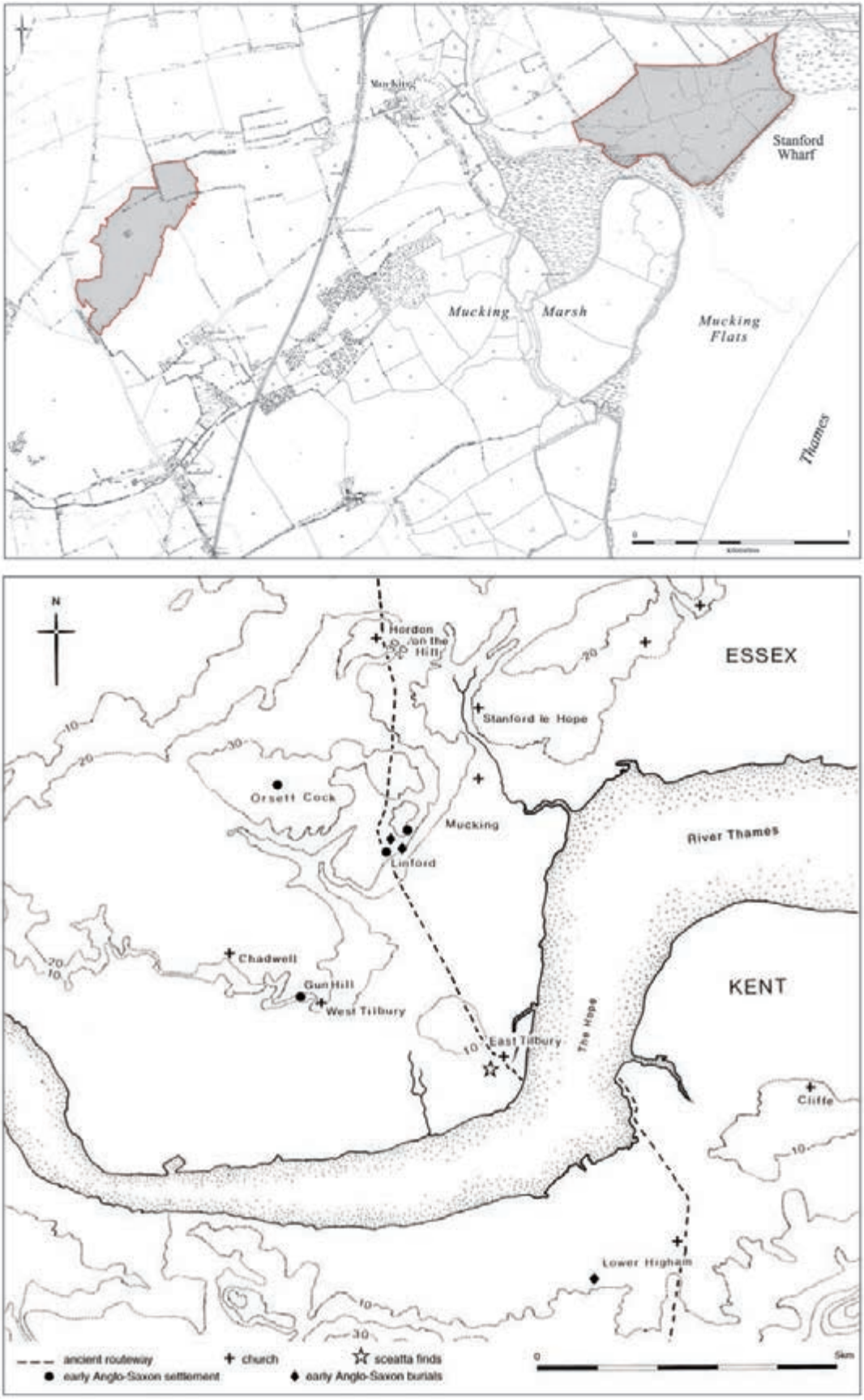


Figure 6.10. Mucking's historical situation; top, 1880s OS map showing the site and its relationship to the eastern marshes (and Oxford's Stanford Wharf excavations); below, map showing the probable line of an 'ancient routeway' to the river crossing at East Tilbury (and Early Anglo-Saxon sites/finds; after Hirst & Clark 2009, fig. 419).

The South Essex Marshes in the Medieval and post-Medieval Periods (Stephen Rippon)

In the Early Medieval period the marshes that fringe the Mucking Terrace would appear to have developed into a mixture of intertidal environments ranging from relatively high vegetated saltmarshes through to unvegetated mudflats lower down within the tidal range (Fig. 6.11). These wetlands were, however, a highly valued resource, most notably for the grazing of sheep. This is recorded in the Domesday Book by the term 'pasture for sheep', which is common in coastal areas of Essex but which is never used in inland parishes except where they held detached parcels in the coastal marshes. Laindon, for example, is an inland parish but in Domesday had pasture for a hundred sheep (Rumble 1983, 3,1), and nineteenth-century maps show how it had a substantial detached parcel on the marshes south of Pitsea. This pattern of inland parishes having 'pasture for sheep' on the Thames-side marshes, and the way that these parishes also held detached parcels there, reflects the change from when these marshes were vast areas of common land to a landscape held 'in severalty' (i.e. blocks of land belonging to an individual person or a single institution; Round 1903, 368–74; Darby 1952, 241–4; Rippon 2000, 201–7). It is generally thought that parish boundaries in southern England were established between the tenth and twelfth centuries AD (e.g. Blair 2005, 368–425), and there is no reason to assume that parochial rights on the Essex marshes were not defined at the same time. An instance of the possible persistence of rights of common on a surviving area of saltmarsh is an area to the east of East Tilbury, which the OS First Edition 6 Inch map (*c.* 1860) marks as 'Common Saltings'.

In the Medieval period these detached parochial parcels generally corresponded to small islands that were known as 'sheepwalks', reflecting their predominant land-use. By the twelfth and thirteenth centuries, however, there is also limited evidence for embankment on the south Essex marshes which allowed arable cultivation. The earliest possible indication of this is the place-name element *-werde* ('-worth', meaning enclosure), the first record of which is 'Radewrth marsh' near Fearing's Farm, Corringham, in 1199 (Reaney 1935, 151). 'Rogewerd' (later Rugward) in Stanford-le-Hope lay nearby and may include the Old English *rogge* (i.e. rye; Reaney 1935, 171). The clearest evidence for the character of this marshland comes from the nearby Canvey Island on which the Priory of Christ Church's (Canterbury) manors of Milton and Southchurch Hall held land. In the late thirteenth century there are accounts for 'Repairs on Canvey Island' that included 38s 6d for John ate Wode and his assistant for making "154 perches of marsh wall on Canvey Island, by the marsh measure viz 21 feet to the perch, at 3d a perch"; other costs included making a pond for watering the sheep, and the making of 120 wattle hurdles (Nichols 1932, 116). In 1436–7, 38s 6d was paid to "John ate Wode and his assistant for making 154 perches of marsh wall on Canvey island", while in 1437–8 there is reference to a further 80 perches of wall on Canvey Island being made at a cost of 13s 4d, 7s being paid to labourers to "mend the gutter near the sea wall of the marsh", and 1s 4d "for making of 8 rods of ditch in the marsh" (Nichols 1932;

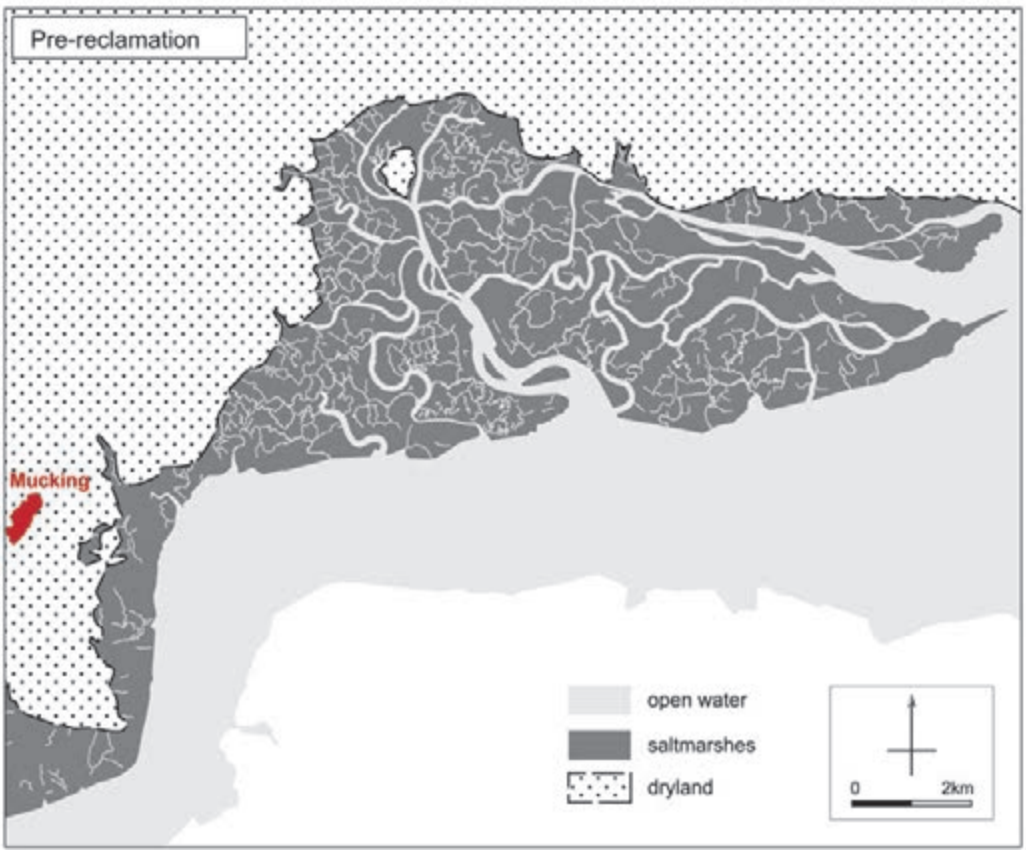


Figure 6.11. The south Essex marshes in the early Medieval period: an archipelago of small inlets (S. Rippon).

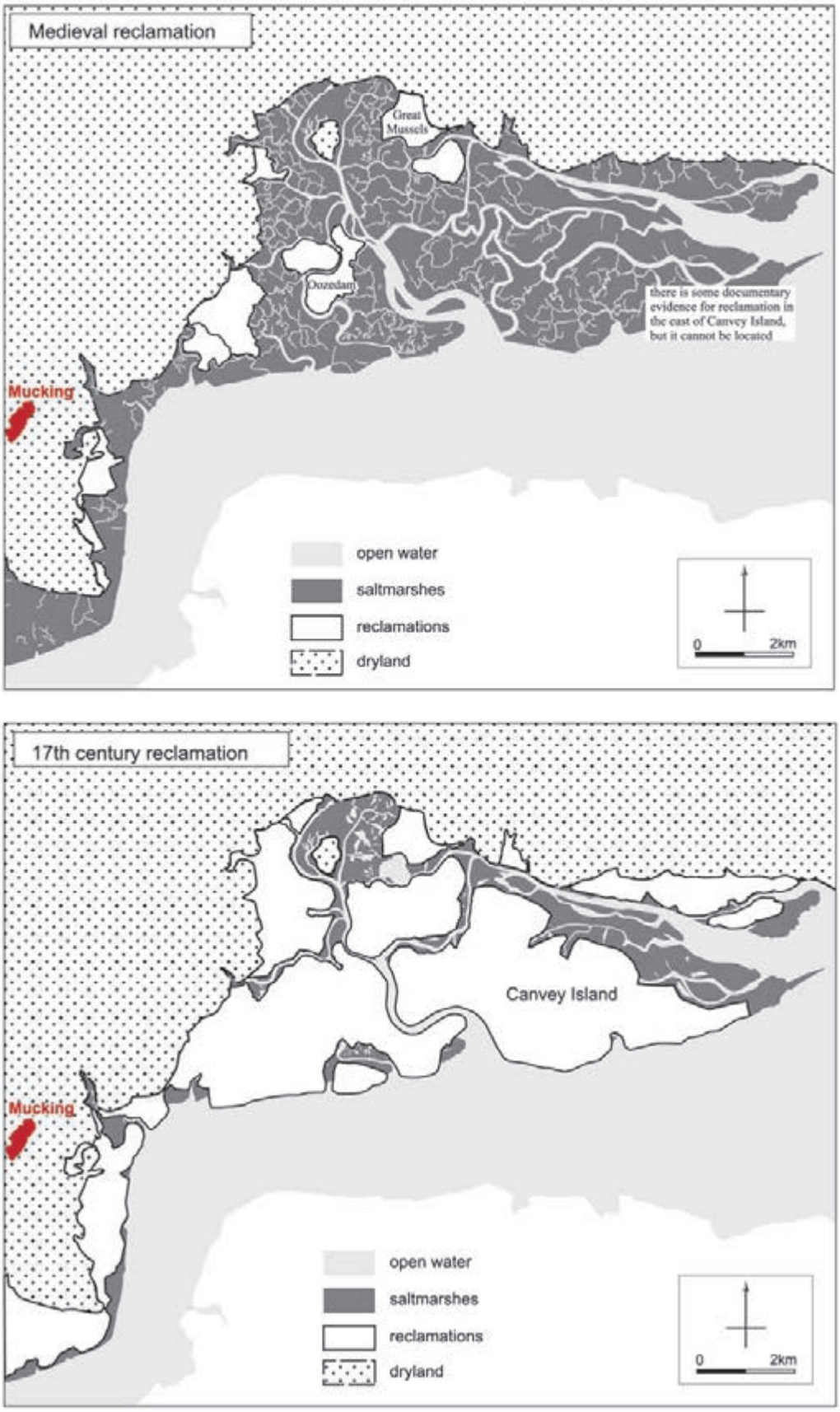


Figure 6.12. South Essex Marshes: top, identifiable Medieval reclamations; bottom, seventeenth-century reclamation (when Canvey became a single island; S. Rippon).

Brown 2006, 143). The location of these embankments on Canvey cannot be determined, and they may have lain in areas since lost to erosion at the eastern end of the island, but the location of several Medieval reclamations can identified further west based upon the highly curvilinear form of the sea walls recorded on early cartographic sources, including Great Mussels in Bowers Gifford, and Oozedam in Corringham (Fig. 6.12).

In the late sixteenth century, William Camden's account of Canvey paints a revealing picture of a pastoral landscape devoted to sheep. He described it as "... so low that often times it is quite overflowne, save for the hillocks cast up, upon which the sheepe have a place of refuge" (this implies that it was an intertidal marsh, or at least that any embankments were not effective). He continues: "For it keepeth about foure thousand sheepe, whose flesh is of a most sweet and delicate taste, which I have seene young lads taking women's function, with stooles fastened to their buttocks to milk, yea and to make cheeses of ewe's milk in those dairy sheedes [sheds] of theirs that they call there 'wickes'" (quoted in Cracknell 1959, 13). In 1594, Norden wrote a very similar account (quoted in Cracknell 1959, 14), and it is interesting that he refers to Canvey 'islands': both his map of Essex and those of several other late sixteenth- or early seventeenth-century topographers clearly show a small group of islands in this area, and a reconstruction of the natural pattern of tidal creeks that once dissected the south Essex marshes does indeed suggest an archipelago of small islands (Figs. 6.11–12).

In the seventeenth century the south Essex marshes were transformed through extensive reclamation brought about through a collaboration between local land-owners and Dutch engineers (Fig. 6.12). The role of the Dutch in reclaiming Canvey Island is well known (Cracknell 1959; Grieve 1959), and there was also Dutch involvement in some of the other south Essex marshes. In 1623, for example, the registers of Corringham Church record the burial of 'Powell, a Dutchman living in Ooze' (Cracknell 1959, 18); 'Ooze' is presumably Oozedam, the 'dam' place-name being a distinctive feature of Dutch water engineering. The church registers of Fobbing and Vange also refer to Dutchmen, and in *c.* 1623 Sir Henry Appleton conveyed a marsh in Fobbing to a Dutchman, Gile Vande Putte (Cracknell 1959, 18). The sea walls constructed at this time can be distinguished from their curvilinear Medieval predecessors as they consisted of straight stretches of embankment.

Over the course of the eighteenth and nineteenth centuries further areas of saltmarsh seaward of the seventeenth-century Dutch embankments were reclaimed, although these lay adjacent to the sheltered creeks to the north and west of Canvey Island. Along the Thames Estuary, the reverse process was seen as coastal erosion led to the old Dutch embankments being abandoned and a new sea wall constructed inland. Over the course of the twentieth century large areas of the south Essex marshes have been lost to urban and industrial development, but the surviving areas represent an extremely well preserved traditional grazing marsh, much of which is now being developed as a nature reserve by the RSPB.[2]

With the later landscape sequence now summarised, wider issues relating to, for example, the number of 'terrace communities' represented at any one time, settlement continuity and social hierarchy/status will be addressed below. Here we will be concerned with overall scale and broad pattern of its sequence in each period, although, as will become apparent, even this is not unproblematic.

The delineation of the site's Early Neolithic to Beaker clusters (A–H) and the scale of its Middle Bronze Age fieldsystem could be read as reflecting now fairly commonplace pattern of 'wildwood' to open agricultural landscape clearance (the fieldsystem evidently continuing north to the area of the North Ring; see Figs. 2.36 & 6.4). The near absence of its Early Bronze Age usage seems inexplicable, however. With the barrows evidently dating to 1700–1400 cal. BC, there seems to be a gap in the site's sequence of 300–500 years for which there is no ready answer. The very existence of the barrows themselves suggests this must have been open land, but the location of its immediately preceding and contemporary (post-Beaker) settlement is unknown. This must be due to the failure to distinguish its wares, as in much of eastern England the Early Bronze Age is usually marked by extensive land-use. This surely relates to a general paucity of Collared Urn within the southeast of the country, focussing upon the larger Lower Thames environs-area, and is apparent in Longworth's distribution maps (1984, figs. 29 & 42; see also Couchman 1980, fig. 15).

Before progressing it should be noted that the 3000–8925sqm-area of the site's early clusters (A–H) is somewhat larger than is usual for such occupation spreads and pit cluster settings when they have been investigated in detail (see e.g. Garrow 2006; Evans *et al*. 2009 and forthcoming). This is surely attributable to the gross-scale of Mucking's resolution; closer interrogation of their distributions and more nuanced excavation would surely have led to the sub-division of some, as well as the identification of more minor configurations. We should also note the tendency towards overlapping usage of cluster areas. While the Grooved Ware cluster (D) and two of the Beaker locales (Clusters E & G) appear newly established, Beaker Clusters F and H corresponded with two of the earlier Neolithic (C & B, respectively; Fig. 6.4). It is just conceivable that this relates to the draw of earlier clearances. Although it is unlikely that the land would have remained in an open state over so long an intervening span, previous occupation clearings may have still carried a lingering, more open environmental cover. In truth, however, the process of the terrace's forest clearance was probably far more complicated than our cartoon-like Neolithic-to-Beaker sequencing suggests.

Common to a number of landscape-sequences, the Beaker is certainly pivotal, as its land-use potentially reflects on issues of land tenure and settlement

mobility. Up until that time, it is reasonable to presume that 'occupation' involved considerable off-site movement, though the quantity of pottery associated with the Grooved Ware pit cluster would suggest a high degree of residential 'tethering' (see e.g. Whittle 1997, Pollard 1999). Do the site's Beaker burials imply a different relationship to land or just a furthering of the same? Elsewhere, for example, evidence has recently been found of very early second millennium BC hedged division of pre-ditched fieldsystem landscapes (Fengate; Evans *et al*. 2009, 112); it can only be regretted that Mucking's archaeology of this period was so little articulated.

Although its settlement features were also weakly represented, it is really only with the Middle Bronze Age that relatively sound evidence of permanent occupation was found, set within the northernmost fieldsystem 'block' (i.e. Cluster I; 4875sqm; Fig. 6.4). Obvious settlement *per se* clearly took off in the Late Bronze Age, at the end of the second millennium BC and the first centuries of the next. Two main settlement foci of the period were distinguished, which seem to be of a completely different scale from what went before. Focussed on the South Rings, that in the south extended over some 3.7ha (Cluster K). While it may have continued somewhat further in that direction, it evidently did not extend into the area of the earlier Linford Quarry investigations. Equally, the cluster at the other end of the site (J), which as delineated was somewhat smaller at 2.6ha, clearly continued further north and may even have been contiguous with the North Ring-area occupation (see Figs. 1.9 & 6.14; Bond 1988). Although the southern cluster appears to essentially represent a new foundation, that in the north coincided with the Middle Bronze Age settlement and, also, the swathe of somewhat lower land there, pocketed with brickearth. This is important on two counts. First, its core-area – the northern quarter of the site as a whole – was avoided for settlement following the Early Iron Age and was not reoccupied until the Early Anglo-Saxon period. Secondly, as has been outlined in Chapter Three, this locale and that specific settlement cluster clearly saw the manufacture of salt-making equipment (i.e. briquetage) and/or salt production proper, whereas the South Rings was evidently associated with the redistribution of salt as such. This evidence of salt production implies the exploitation of off-terrace estuarine marshes. As opposed to the presumed quasi-cyclical nature of preceding Neolithic land-use and its mobile 'tasking', at this time we see *the use of complementary landscape resources from a permanent settlement base.* Indeed, was it this exploitation of off-site resources – tidal creeks and low-lying pasture – that allowed the terrace's 'home communities' to flourish?

Together extending over some 6.3ha, the site's two Late Bronze Age settlement swathes have to be considered large for the period (Fig. 6.4), with those in the range of 1–2ha being more commonplace (see, though, the even larger, 4.7–7.5ha settlements identified within the Stansted environs; Timby *et al*. 2007, fig. 4.41). Yet few buildings of the period were identified. Their paucity must relate to problems of on-site distinction and recovery and surely many more were present; as mentioned, some of the generic 'post-circle' structures discussed in relationship to the site's Early Iron Age usage could well be of earlier attribution (see Chap. 4, Fig. 4.24). It is, nonetheless, questionable whether all of the site's settlement areas saw occupation at the same time, with successive shifting and multiple foci likely.

Amongst the most significant outcomes of the current project has been the 'rediscovery' of Mucking's Early Iron Age, extending in total over some 6.9ha and with its distributions closely coinciding with those of the Late Bronze Age (Fig. 6.5). Aside from the attribution of an extraordinarily large roundhouse (No. 39), as well as the tentative identification of others (plus Brudenell's outlining of its major pottery groups), it cannot be said that we have greatly detailed the period's occupation. It now provides, nonetheless, a direct connection with the earlier Linford Quarry findings (see Figs. 4.7 & 6.14; Barton 1962). This brings the site's sequence more into line with others in the south Essex area (see below and e.g. Howell *et al*. 2011, 52–3) and, indeed, also Kent's recent vast-scale excavations (see Champion above); we no longer have to argue for the terrace's depopulation at that time, and seek recourse in explanations involving soil exhaustion or similar 'mass exodus' events.

As delineated by a major east–west ditch boundary (IA10; see Fig. 5.33), the Middle/later Iron Age settlement did not extend into the site's northern quarter (nor was there evidence of use from that time in the area of the North Ring; Fig. 6.5). It spread across 12.6ha and only avoided the site's extreme margins along its northwestern half and, in the east, south of the North Enclosure. No definite features of this date were recorded at Linford to the south.

With more than 110 roundhouses of the period recovered, Mucking is certainly amongst the most extensive and dense Middle/later Iron Age settlements known within Britain. While perhaps reflecting a degree of 'landscape zoning' (see Chap. 5, *Discussio*n), this would nonetheless still essentially seem a matter of *settlement fabric*; if the site's exposure had extended further, we would expect the immediate terrace's 'dotting' of the compounds to continue. Their *c.* 200m-interval is somewhat smaller than the *c.* 300–500m interval between the period's settlements now found in portions of southern Britain (e.g. Evans *et al*. 2008). The implications of this will be further

discussed below, especially as regards the role of the central Plaza complex.

The Roman settlement's main components largely shared the same mid first to mid third century AD chronology, with (very) Late Roman activity only really occurring within the southern part of the site, where it correlated with the site's earliest Anglo-Saxon activity. The site's northern end was largely avoided throughout that time (Fig. 6.5). While clearly seeing incidental usage up to and including the North Enclosure-area, the actual Roman occupation zone had retreated a further *c.* 200m to the south, where it there extended over some 8ha. Boundaries of that attribution evidently continued into the area of Linford Quarry, though the southern side of the RBI and Southern Enclosures possibly marked the main limits of occupation *per se* in that direction. There is, however, no doubt that the main settlement continued down the terrace's eastern brickearth-covered slope. Leaving aside the reuse of both the ABC Enclosures as a cemetery and the use of the Belgic Banjo-area primarily for industrial activity (the Western Enclosures), the period's settlement core only covered some 6ha(+); in other words, broadly equivalent to the site's Late Bronze Age.

As discussed above within Chapter Four, the Roman settlement essentially followed a 'ladder-like' pattern and was arranged around a crossroads, possibly with an open ground/?market at the crossing point of the routes. Its overall layout appears quite formal, with the concentric – if partial – double-ditch circuits of both RBI and the 'Central'/Double Ditch Enclosures' being distinct. Generally, its arrangement suggests an underlying binary structure, with civic/'control' facilities focussed upon the latter enclosure in the north and with settlement (and industry) occurring within the Southern Enclosure block. As marked by the 50m-wide apparently empty zone between them, their separation appears strict. It seems significant that it was within this 'void' that the main Anglo-Saxon cemetery lay.

Mucking's Anglo-Saxon settlement generally extended throughout the stripped area and it was continuous across some 16.6ha, avoiding only the site's western margins in its extreme northern and southern ends (Fig. 6.7). It still ranks as the single largest settlement of the period known within Britain, even if this only amounted to a partial exposure. The settlement clearly extended southward across the area of Linford Quarry and further north, with two/three *Grubenhäuser* being found at the North Ring (see Fig. 6.15; Bond 1988, 20). As discussed in the period's summary above, Tipper convincingly argued that further *Grubenhäuser* can be distinguished on aerial photographs of the fields west of the site's central portion and that settlement evidently extended further in that direction.

The distribution of the Anglo-Saxon buildings was far from uniform and two high-density cores are apparent; one in the south covering 3.6ha (+) and, in the north, another of more than 3.9ha. These were of quite different character. Not only was the southern earlier, it largely consisted of *Grubenhäuser* – with these, in part, distributed alongside the postulated Roman road-line – and almost entirely lacked post-built structures. (Tipper postulated that their absence was real and a characteristic of it as a settlement, with Hamerow rather seeing the paucity of post-built structures as the result of over-machining.) In contrast, the northern settlement-area was largely of later, sixth–seventh-century date and had a comparable density of *Grubenhäuser* and post-built structures. (Based on the *Atlas* maps, the latter are, in fact, probably underrepresented on all of the published site plans, and many other such candidates can be distinguished.)

While Hamerow envisaged Mucking's Anglo-Saxon occupation as representing successive settlement-shift of fairly small residential units, Tipper proposed overlap in the use/life-time of its two core-areas (based on pottery sherd-joins), with the period's main cemetery (ASII) marking their divide. What is singularly important is that Mucking's northern Anglo-Saxon settlement core marks the first substantive usage of the site's northern quarter since the Early Iron Age. Why it should have been so densely reoccupied at that point is not obvious, though groundwater supply may have been a contributing factor.

Having now broadly sketched the site's land-use history – and highlighted the off-site 'pull' of its settlements by period (see also Fig. 6.20 below) – an effort should be made to appraise the intensity of occupation in each case. In an attempt to gauge the long-term foci of the terrace's settlement sequence, Table 6.1 presents what is, in effect, a matrix analysis. To facilitate this, the site has been divided into 11 zones (see Fig. 6.13), with their settlement presence/absence indicated in each period and their cumulative 'scores' calculated. This focuses on actual occupation, so that the Early Bronze Age barrows and the axes of the Middle Bronze Age fieldsystem are not included, and nor is the Roman cemetery within the area of the ABC Enclosures. By this means, the extent of the site's Anglo-Saxon and Early Iron Age settlement is striking, and they respectively achieve the top distribution 'scores' (10 & 8). RBI sees the longest duration of use (six periods), seeing uninterrupted occupation from the Late Bronze Age though to the Anglo-Saxon period. The Banjo and Double Ditch Enclosures come next and both saw use through five continuous periods, from the Early Iron Age onwards.

Aside from the main zone-tallies, the table's specific sequence-locale 'chains' deserve notice. First,

Figure 6.13. Designated site zones.

	1	2	3	North Enc. 4	5	DDE . 6	Banjo	8	ABC	RBI	11	Distribution no. of areas
E. Neo		X		X				X				3
Grooved Ware			X		X							2
Beaker				X			X	X			X	5
MBA		X										1
LBA		X		X				X		X	X	5
EIA	X	X		X	X	X	X	X	X	X		8
MIA			X	X		X	X		X	X		6
LIA						X	X			X		3
Roman						X	X	X		X	X	5
Anglo-Saxon	X	X	X	X	X	X	X	X		X	X	10
Duration	2	5	3	6	3	5	6	6	2	6	4	

Table 6.1. 'Matrix Table', with grey-tone indicating zones used in three or more successive periods and those periods in each zone with maximum area extent highlighted in red.

the northeastern end's continual occupation between the Middle Bronze Age and the Early Iron Age and, thereafter, that area (along with Zone 1) was all but completely abandoned until Anglo-Saxon times. Second, is the North Enclosure-area's uninterrupted Late Bronze Age to Middle Iron Age sequence. Finally, what this table also conveys is the lack of any immediate-area 'settlement chains' prior to the Middle Bronze Age and the sporadic nature of the terrace's Neolithic and Beaker occupation; this would not attest to direct locale-continuities.

It is really this latter point that justifies tabular analyses such as these. It is not a matter of any unfettered faith in statistics, but rather that they can highlight trends that might otherwise have been overlooked. It does seem remarkable that this kind of long-term settlement-trend analysis can be conducted on Mucking's data. You will not, for example, find comparable close-grained sequence-resolution on the Gateway-area's current multi-million pound archaeological projects.[3] Indeed, there is no small irony here in the light of Champion's 1978's critique of the site's lack of topsoil collection (given its 'total archaeology' aspirations; see Chap. 1), as – by generating so much residual-background material – *Mucking's intense excavation effectively provided the equivalent of a dense surface-collection technique*.

Having done this initial-level analysis, the site's number of sherds per period will next be compared to their respective settlement cluster/zone areas. This is an exercise fraught with ambiguity. As detailed in Table 6.2, establishing the quantity of pottery by period involves various extrapolation and factoring procedures. Equally, there are problems of its attribution, with the divide between Late Iron Age and Early Romano-British wares being an obvious case in point. It should, furthermore, be stressed that this does not in anyway pre-suppose that the use of ceramics would have been uniform over such a great time-span. There can have been no real equivalence between, for example, the functional deployment of earlier Neolithic bowls and mass-produced Romano-British vessels. Not only does their representation reflect the periods' diverse modes of settlement (seasonal *vs*. permanent) and exchange/trade networks, but also the changing role of ceramics in their respective material culture assemblages.

If ignoring the tendency towards 'peaked' oscillation along its earlier/left-side end, the site's Late Bronze Age's 'take off' is readily apparent in Figure 6.14's plots. Marked by approximately more than 12- and 50-fold increases respectively in settlement- and pottery assemblage-size, that period's values demonstrate an enormous increase, from which they both thereafter climb. This is to the point that, in relationship to the Middle Bronze Age levels, eventually the site's Romano-British usage saw a more than 16- and 280-fold increase.

There are, though, discrepancies within this trend that need to be addressed. First, is the apparently limited scale of the site's Middle Bronze Age-area when compared to that of its four Beaker locales. This

	Settlement Size (ha)	**Pot** (no.)	**Structures** (no.) *	**Interments** (no.)
Earlier Neo	1.9	23		-
Late Neo/GW	0.3	283		-
Beaker	2.6	65		2
MBA	0.5	511		8
LBA	6.3	27,215+	8	12
IA	12.6	107,750++	115	73
RB	8	145,000Δ	26	169
Anglo-Saxon	16.6	32,000	252	809

Table 6.2. Mucking's period/phase frequencies (excludes 'posters'; + in reference to Brudenell's Chap. 3 study, this approximate figure is based on the application of the overall mean sherd weight of 12.64g for the pottery he examined from the South Rings to the estimate of more than 344kg of Late Bronze Age pottery coming from the site as a whole; ++ based on Brudenell sample estimation, see above Chap. 5, above; Δ as detailed in the companion volume, not all of the Roman pottery was computerised and, therefore, this might even be an underestimate, with the true figure perhaps as high as 160,000 sherds). Note that the Iron Age burial count also includes those of Conquest-Period attribution and that the enumeration of both the Late Bronze Age and Iron Age structures excludes the potential 'generic' post-circle settings (see Fig. 4.24).*

is based on the distinction of settlement alone and not 'open' ground. Surely by the middle centuries of the second millennia BC, if not well before, most of the terrace would have been entirely cleared and open; in addition, it is possible that not all of the site's Middle Bronze Age occupation was distinguished. The second point pertains to the relative size of the Iron Age and Romano-British assemblages: the latter being some 40% greater, when compared to what seems to be a *c.* 30% reduction in its settlement-size. This is accounted for by the wide dispersion of the terrace's Iron Age roundhouses (and 'posters') and that the area of its enclosed settlements would only amount to *c.* 1.5ha (excluding The Plaza). The mass-scale of the Roman settlement's pottery industry also surely contributes. In contrast, the Anglo-Saxon assemblage – when there was more than a doubling of the settlement-area (and a huge increase in the number of structures) – was marked by an almost 80% reduction in pottery. This is due to that period's much lower levels of pottery usage/circulation generally when compared to preceding Romano-British production rates. Yet, what is singularly interesting is its broad equivalence to the site's Late Bronze Age. This must reflect the 'group gathering-scale' of the South Rings' deposition and, also, perhaps indicates just how much contemporary occupation went undetected (i.e. roundhouses), but which is hinted at by the identification of 'generic' post-circle settings (see Fig. 4.24).

Table 6.2 also includes the figures by period for both its structures and burials. While obviously similarly plagued by problems of attribution, these categories appear to tell different stories, as also shown in Figure 6.14's lower graph. Leaving aside the site's unassigned interments, the burial evidence show a steady increase from only two Beaker graves to its more than 800 Anglo-Saxon burials. The regular rise it presents is, of course, somewhat misleading, as nearly all of the Iron Age entries are of Late/Conquest Period date; properly reflected, this would then attest to a dramatic leap in burial-representation from the later first century BC/first century AD onwards.

Numbers of structures lag behind the burials and only definitely appear from the Late Bronze Age. From then, their numbers rise to climax in the site's some 260 Anglo-Saxon structures. It could be argued that the scale of the latter is exaggerated due to the dual character of the period's buildings, both sunken-featured *Grubenhäuser* and post-built structures. Yet, while influencing the numbers, comparable pairings of residential and ancillary structures (which these could be argued to be) are also seen in the site's Iron Age roundhouse 'pairings' and the wide array of Romano-British building-types.

Comparing these two plots, a significant discrepancy occurs in the apparent reduction in the number of Roman-attributed structures. Admittedly that period's usage span (leaving aside any potential Late Roman *Grubenhäuser*; see below) was somewhat shorter than its Iron Age, but was comparable to its Anglo-Saxon. Accordingly, the massive reduction in the number of Roman buildings, relative to what went before and came after, is certainly marked. The loss of beam-slot structures through over-machining surely contributed to this. Yet, taken at face-value, its low number of buildings seems completely disproportionate to both the quantity of the period's pottery and its burial register. The former may be explained by the specialist nature of its pottery production, which may even have involved the daily arrival of labourers to the terrace's workshops from off-site communities.

What, however, of the burial record? With both the main span of the site's Roman and Anglo-Saxon occupations lasting for some 200 years or approximately six generations each, their adult populations – respectively *c.* 150 and 600 – would correspond to 25 and 100 per generation. Respectively

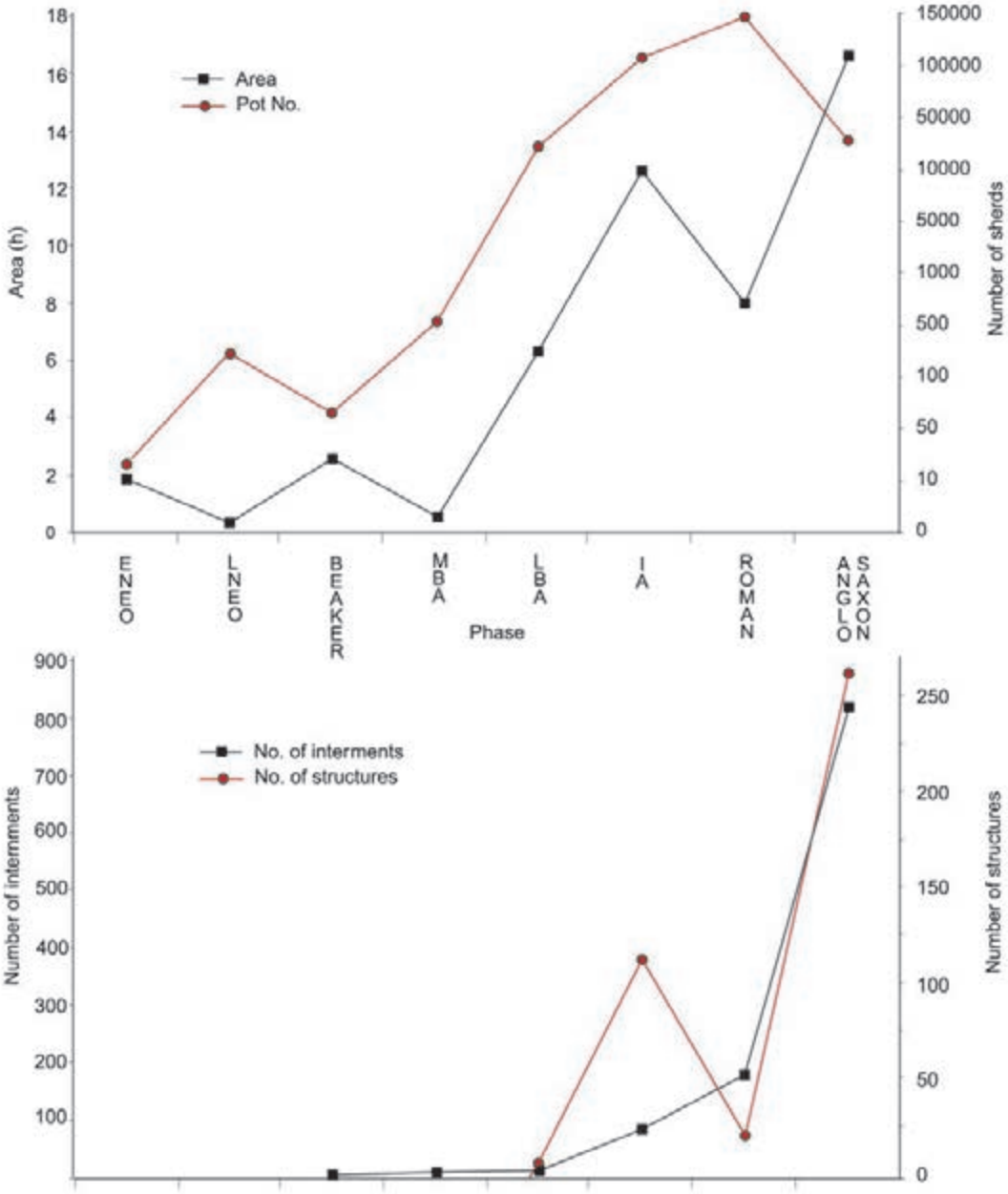


Figure 6.14. Mucking's frequency plots by period comparing settlement-area to pottery (top) and, below, phased interments to structures ('posters' excluded).

amounting to three to six and 12–25 familial groups, the evidence clearly shows that Mucking's Anglo-Saxon occupation was far more intense than its Roman: three times more so.[4]

There is somewhat less chronological control of the some 70 burials representing its preceding Iron Age usage (apart from the fact that few, if any, are likely to date to before the Late Iron Age). If seeing them as broadly spanning a century and, thereby, some three generations (*c.* 50 BC–AD 50), taking account of their infant component they would roughly equate with the Roman levels of three to six familial groups. With its poor settlement resolution and partial burial register, any estimation of the size of the immediate site-area's Late Bronze Age populace could only be approximate at best. Five to 10 families would seem a reasonable figure, which would imply that probably a quarter or less of the period's buildings were recognised during excavation.

Figure 6.15 portrays the period-based extent of the 'greater' Mucking terrace occupations. What is striking is that both Late Bronze/Early Iron Age and Anglo-Saxon were found throughout. As will become apparent in the following section, these two horizons are also common to a series of even more widespread environs investigations.

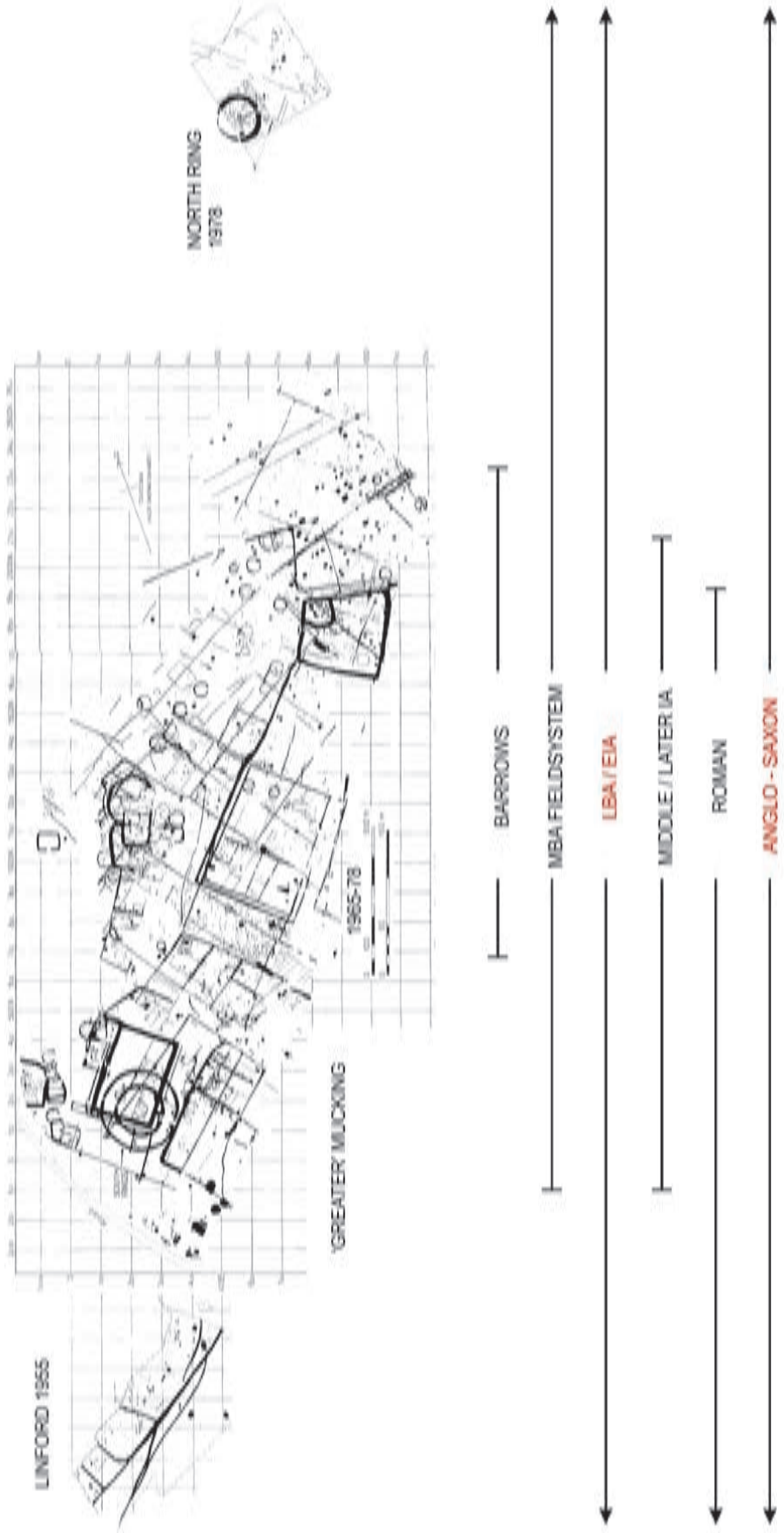


Figure 6.15. Greater Mucking Environs site distributions, showing the Joneses' excavations in their real spatial relationship to both the Central Unit's North Ring Site (see Fig. 1.9; Bond 1988) and the earlier Linford investigations (Barton 1962; see Fig. 1.8, this plan being an archival rendering by Paul Barford). The bar diagrams below indicate the overall extent of the terrace's period-occupation/-usage; what is truly remarkable is the recovery of Late Bronze/Early Iron Age and Anglo-Saxon throughout (see also Table 6.3), as well as the restriction of eavesgully-surrounded Iron Age roundhouses to only the southern four-fifths of the Joneses' main area.

Gauging Settlement – Comparative Context

Mucking's contextual background has recently been greatly bolstered by a case-study of cropmarks across an 18sqkm block immediately west of the site that appeared in Ingle and Saunders' National Mapping Programme volume for Essex (2011, 81–9). Their maps clearly show the site's relationship to both local barrow distributions and major monuments and the main excavated sites within its hinterland: Orsett's causewayed enclosures (Fig. 6.16.P), Orsett Cock's later Iron Age enclosure complex and the Late Bronze Age ringwork at Hill House just west of Orsett, which may be comparable to the Mucking Rings (Fig. 6.16). In their interpretation of its landscape, Ingle and Saunders generally stress potential long-term resonances; for instance, between the concentric layout of Mucking's south Rings and the Orsett causewayed enclosure lying 2km distant. Of the latter, they suggest that lingering associative impact may have attracted the Iron Age settlement both within and adjacent to its circuits (Ingle & Saunders 2011, 83 & 87). They also emphasise that, in common with much of south Essex, relatively few cropmarks are visible; this is variously accredited to deep soil cover, local urban development and geology (i.e. clays). Accordingly, it is unlikely that all of the wider area's ditch-defined cropmark complexes have yet been registered (*ibid*., 81).

Most useful for our purposes are their period-specific Iron Age and Roman plots. Of the former, 12 individual enclosures and more complex groupings have been identified (including Mucking's). While in some cases this is based on excavation, generally it has been determined by morphology. Though some sub-circular compounds occur, most are square and rectangular configurations (some with internal roundhouses visible). These are attributed to the Middle/Late Iron Age and, typically, no Early Iron Age cropmark sites are known. Leaving aside the two multiple-component enclosure complexes west of Orsett (Fig. 6.16.N & O), these would seem broadly comparable to 'North Enclosure-type' compounds based on their plans and nothing seems directly akin to Mucking's 'Belgic Banjo'. That said, aside from one rectangular enclosure immediately east of Orsett that is some 65m across (Fig. 6.16.L), they seem much smaller than the North Enclosure (<50m; see, though, also *ibid*., 63–8, figs. 3.5–8).

Based on this plotting, the identified sites of the period would equate to a density of only one per 1.5sqkm. Based on recent recovery rates – even on heavy soils (see e.g. Evans *et al*. 2008; Clay 2002) – this would suggest quite a low level of usage, if in any way representative of the area's total 'picture'. Indeed, only the 120–350m interval between the individual enclosures within the cropmark complex east of Orsett (including Orsett 'Cock'; Fig. 6.16.L & M; see also Ingle & Saunders 2011, fig. 3.23) would seem comparable to the period's known settlement density across much of southern England. This suggests that local settlements were either quite patchily spread or that the majority of the area's Iron Age enclosures have yet to be distinguished.

The ensuing Romano-British landscape indicates far more extensive usage, involving multiple rectilinear alignments. The most major system is that immediately east of Orsett (Fig. 6.16.Q), which evidently incorporated earlier, Iron Age compounds within its layout and must attest to settlement continuity. This complex is thought to perhaps represent a crossroads hamlet, with separate farmsteads on both its eastern and western sides. The latter is of particular interest as, extending over *c*. 120 × 150m, it is double-ditched on three of its sides (*ibid*., fig. 3.23.Z) and, thereby, seems comparable to Mucking's RBI and Double Ditch Enclosures. Also noteworthy is a very large, internally sub-divided, round-corner rectangular enclosure southwest of Orsett's causewayed enclosure (*c*. 190 × 250m). Evidently located alongside an east–west road/trackway, this appears formally planned and its regularity could even suggest a possible military origin (*ibid*., fig. 3.14.F, 71–8).

Even with this cropmark evidence, it is still difficult to appreciate Mucking's sequence and particularly its long-term settlement-feature density. Accordingly, we will employ here a *comparative approach*, furthering an agenda now long-practiced by the CAU. In the first instance, the scope will be restricted to excavated sites within Mucking's immediate environs. Of these, the most recent is Oxford Archaeology's 2008–9 Stanford Wharf investigations (Biddulph *et al*. 2013). Located alongside Mucking Creek and beside the Thames proper, excavations took place across some 13.5ha (with watching brief recovery over a further *c*. 21ha; Fig. 6.17 and see Fig. 6.10 for location). Elucidating the area's lowland/riverside activity in contrast to Mucking's terrace-top settlements (see Fig. 1.2), it is rare to have such directly complementary site sequences available. This is especially true of its Roman usage and, accordingly, that site's results will be more fully discussed within the relevant Mucking volume. Mention must be made though that, in response to set mitigation measures, the excavations were limited by depth and the site's pre-Roman ground surfaces were not fully exposed; accordingly, its prehistory is severely under-represented.

The palaeoenvironmental investigations at Stanford Wharf indicate two main marine transgressions: first during the Late Bronze Age and, again, after the Middle/Late Iron Age. These evidently established the area's tidally inundated and land surface crossed

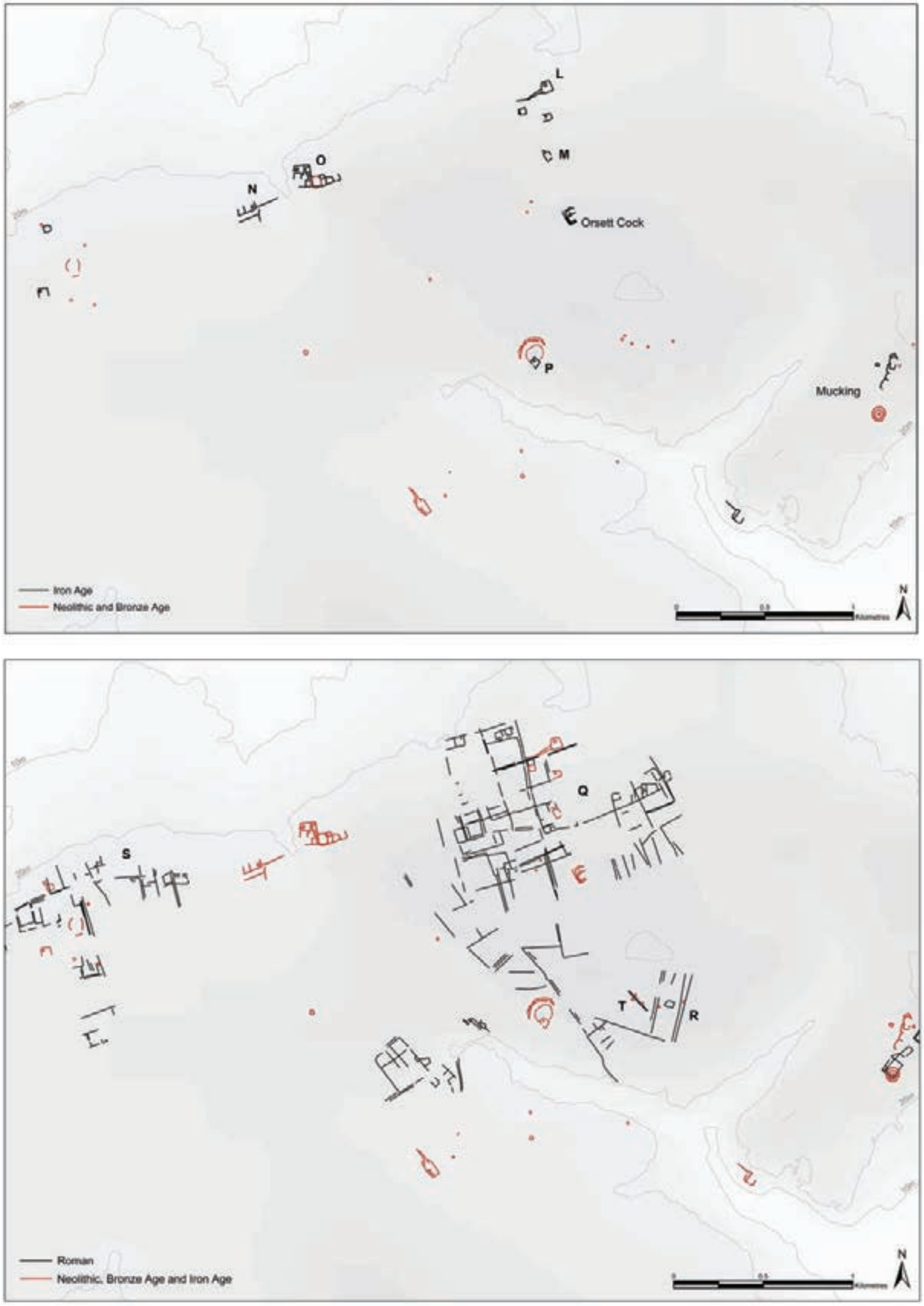


Figure 6.16. Cropmark Context: top, Iron Age; bottom, Roman (after Ingle & Saunders 2011, figs. 3.21 & 3.22).

Figure 6.17. Oxford Archaeology's Stanford Wharf Site base-plan (see Fig. 6.10 for location).

with creeks and, thereby, provided the basis for its salt production.

Little evidence of any Neolithic or Bronze Age activity was recovered, surely relating to the *in situ* preservation of the site's lower deposits, and there were only a few ditch/gully lengths and pits attributed to the Iron Age (nor was there any evidence of Anglo-Saxon activity). Middle Iron Age pottery was found associated with four of the site's 10 'Red Hill' mounds, apparently marking the commencement of salt-making at the site.

Stanford Wharf then saw usage throughout the Roman period, particularly during the third and fourth centuries. Its 'architecture' consisted of post-lines – variously fence-, footbridge- and/or trackway-related, with other uprights thought to be building piles – gravel causeways and sinuous ditch enclosures (in marked contrast to Mucking's more rectilinear layouts). There were both gullied roundhouses and rectilinear structures associated, of which two of the latter – like Mucking's – were apsidal-ended. In addition to the 'Red Hill' deposits, various tank features and kiln settings were present that evidently related to salt production and almost 20,000 pieces of briquetage were retrieved. Yet, the site's Romano-British usage was obviously not just salt-related, and, in addition to evidence of metalworking and fish processing, 11 rotary quern stones and more than 14,000 sherds were recovered (plus glass and metalwork), which must attest to a degree of occupation *per se*. In stark contrast to Mucking's many cemeteries of the period, there was only a single cremation. This must tell of a distinctly different form of settlement; perhaps the industrial component of a main up-slope foci to the north, or else seasonal utilisation of the immediate area.

Other neighbouring sites – Rainbow Wood (Potter 1974), Gun Hill (Drury & Rodwell 1973), Orsett 'Cock' (Carter 1998) and the Orsett causewayed enclosure (Hedges & Buckley 1978) – have already been cited within the text above and require no further outline (see Figs. 1.2 & 5.12 for location). What do warrant some mention are the excavations relating to the construction of Grays By-pass in 1979–80 (Wilkinson 1988). This involved four site-areas within the immediate Grays/Orsett area, aside from a series of pits/sections sampled for palaeoenvironmental purposes: Baker Street and Rectory Road, Orsett, and Stifford Clays and Ardale School, Stifford. Much of the fieldwork response was, in fact, directed towards the various cropmark groups subsequently overviewed by Ingle and Saunders. Given the conditions of the day, not surprisingly most of the exposures were of a limited scale and their details need not particularly concern us. The Ardale School Site would have to count as the most relevant here. Not only was it the largest and saw a sequence of Middle/Late Iron Age enclosures and associated roundhouses (plus a putative Late Iron Age inhumation cemetery), but it also saw Anglo-Saxon settlement and inhumations, with the three of the latter occurring in small, ditched barrow settings (*ibid*., 24–59).

The relevance of Grays' fieldwork goes far beyond its immediate site results as it represents a radical departure from most British archaeology. With its associated palaeoenvironmental programme, it broadly extrapolated from fairly sparse excavation evidence to produce a comprehensive land-use succession model drawing on a variety of sources. These ranged from cropmarks, parish Domesday records and statistically quantified Sites and Monuments Record entries. Aside from discussing such matters as distance between settlements of different periods, the rise of settlement evidence from the beginning of the first millennium BC was highlighted, based on the latter sources and local pollen data in parallel with Mucking's sequence (*ibid*., 115–30). In short, the Grays' programme was actually much more akin to a state-of-the-art overseas fieldwork project (maximising interpretation from limited excavation) – something not at all surprising given its director's credentials[5] – and, as such, markedly contrasts to Mucking's site-focused 'rescue' agenda (and from whose findings it drew extensively; e.g. *ibid*., table XV).

In Table 6.3 the sequences of these various neighbouring sites have been presented as straightforward period presence/absence. For the sake of convenience, period-inclusion is limited to their pottery register. While, therefore, both leaf-shaped and transverse arrowheads, as well as other flints, were recovered at the Ardale School Site (Wilkinson 1988, 27–8), their respective periods – Early Neolithic and Beaker/Early Bronze Age – do not appear in the table listing. Presenting the adjacent sites in this manner (and excluding Stanford Wharf's partial sequence) helps one to appreciate why such an emphasis was paid to the recovery of a *full* Mesolithic to Anglo-Saxon/Medieval sequence at Mucking. Having evidence of seven out of 11 'use-horizons' (*vs*. an average of 3.6 for sites in the environs), only Orsett's causewayed enclosure came close. Otherwise, the sequences of nearby sites were partial, with little pre-Iron Age archaeology apparently present. Given their cropmark focus, that the Iron Age and Roman should feature so widely is not unexpected. Two further points warrant emphasis. First, in contrast to the paucity of earlier/Middle Bronze Age usage and further to Wilkinson's conclusions, is the frequency of Late Bronze/Early Iron Age evidence. Indeed, with a representation at nine sites, it is the most widespread horizon. Second is the frequency of both Early Anglo-Saxon settlement and burials, towards which none of the excavations were initially directed and which must, thereby, count as incidental findings. That

Table 6.3. Mucking environs sites' phase/period representation (with grey-tone indicating maximum frequency).

	Mucking	Linford	N. Ring	Orsett Causeway Enclosure	Stifford Clays	Gun Hill	Orsett 'Cock'	Ardale School	Baker Street	Rainbow Wood	Rectory Road
E. Neo	X			X							
P'borough	X										
Grooved Ware	X			X							
Beaker	X			X							
C. Urn/EBA	X			X							
MBA	X		X								
LBA/EIA	X	X	X	X	X	X			X	X	X
MIA	X			X	X	X	X	X			
LIA	X				X	X	X	X			
Roman	X	X			X	X	X	X	X?		
Anglo-Saxon	X	X	X	X	X	X	X	X			

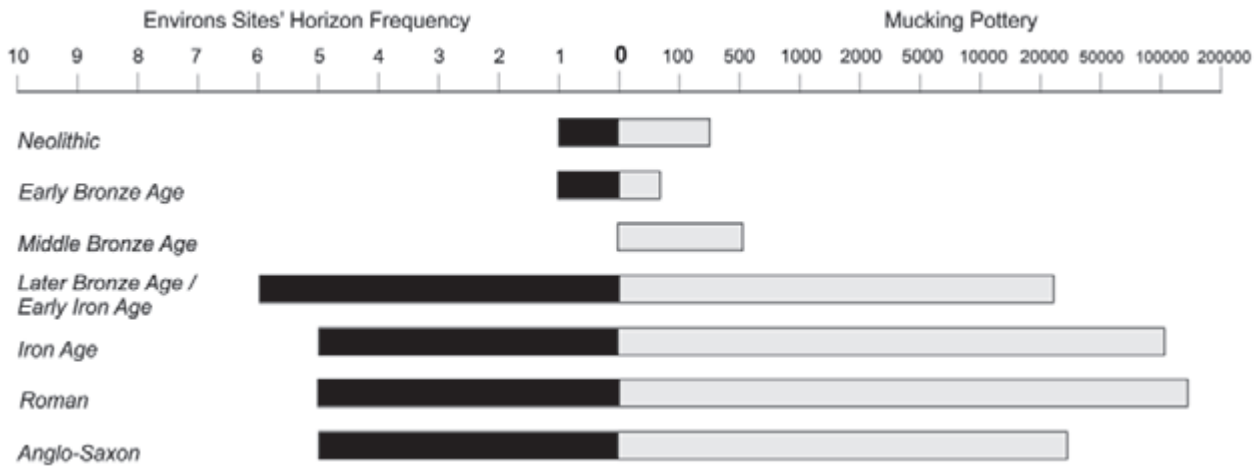


Figure 6.18. Comparative plotting of environ sites' 'use-horizon' frequencies (see Table 6.3, but with Linford Site and North Rings excluded; cf. Wilkinson 1988, fig. 98) and Mucking's phased pottery values (by no.).

Grubenhäuser have been so widely encountered can only attest to the wider area's very high settlement densities at that time (see Hirst & Clark 2009, 445, 448–9 for further overview).

In Figure 6.18, excluding Linford and the North Ring (on the grounds that they were part of the same greater Mucking complex), the 'use-horizon'-representation of the environs sites are compared to Mucking's pottery frequencies by period. As well as demonstrating the completeness of Mucking's sequence, this shows the marked rise apparent in both during the Late Bronze/Early Iron Age. Clearly reflecting a wider landscape phenomenon and not just something that is specific to Mucking, thereafter the frequency/numbers of both stay high. By comparing the two sides of the plot, the argument could be made that Mucking 'over-performed' in relationship to its environs' background during the Iron Age and Roman periods, but that would risk directly equating pottery- and site/horizon-frequencies.

These early environs excavations were so tightly focused on specific sites that, although certainly providing insights, they do not bear direct comparison with Mucking (together their 10-site coverage would amount to less than 5ha). To this end, larger projects are required. Accordingly, based on the premise that 'numbers are good to think with, too' (cf. Bloch 1998), Mucking's numbers of finds by period will now be expressed by densities per hectare and shown in relationship to other similarly 'scaled' landscape excavations (Table 6.4). This establishes when Mucking's sequence can be considered as 'typical'

Table 6.4. Mucking and 'scaled' Fenland project pottery frequencies compared, with bracketed entries indicating average densities per hectare (note excludes generic 'later prehistoric pottery' categories, etc.; Over Narrows' values excludes its barrows and buried soil findings; Fengate's finds derive from the CAU's Elliott and Edgerley Drain Road Sites and Pryor's Newark and Storey's Bar Road sub-Sites; for pragmatic reasons, Eye Quarry omits the finds from the first two seasons).

	FENGATE (8ha)		OVER NARROWS (10.9ha)		EYE QUARRY (18.7ha)		COLNE FEN (16.4ha)		MUCKING (18ha)
	Sherd no.		**Sherd no.**	**Weight** (g)	**Sherd no.**	**Weight** (g)	**Sherd no.**	**Weight** (g)	**Sherd no.**
Early Neolithic	62		41	266	85	189	422	2043	19
	(7.7)		(3.8)	(27.7)	(4.5)	(10.1)	(25.7)	(124.6)	(1.05)
Peterboro. Ware	13		13	68	585	3678	25	174	4
	(1.6)		(1.2)	(7.1)	(31.3)	(196.7)	(1.5)	(10.6)	(0.2)
Grooved Ware	1265		325	3645	-	-	62	1409	283
	(158.1)		(29.8)	(334.4)			(3.8)	(85.9)	(15.7)
Beaker	326		773	9980	230	838	23	128	c. 65
	(40.7)		(67.2)	(915.6)	(12.3)	(44.8)	(1.4)	(7.8)	(3.60)
C. Urn/EBA	165		442	4078	409	4918	257	1956	?2
	(20.6)		(40.5)	(374.1)	(21.9)	(263)	(15.7)	(119.3)	(0.1)
Dev-Rim.	172		149	2947	531	5438	3233	10,334	511
	(21.5)		(13,7)	(307)	(28.4)	(290.8)	(197.1)	(630.1)	(28.4)
LBA/EIA	124		850	5067	3069	21,123	1449	17,945	27,215
	(15.5)		(78)	(464.9)	(164.1)	(1129.6)	(88.3)	(1094.2)	(1511.9)

of the region and/or southern English landscape densities, and when it differed and became something 'special'. Obviously, to be able to undertake such analyses is a privilege of hindsight and is something that the Joneses simply would not have had access to. Whether they would have approved of such a statistical approach to past sequences is unknown; it was an unrealised possibility at that time.

To achieve such comparison will, of course, eventually require a certain degree of factoring to compensate for Mucking's intense excavation-sample in contrast to the much lower percentage typical of recent developer-funded projects. Although the recovery of Mucking's pre-Late Bronze Age material was, to some extent, enhanced through residual findings within later features (e.g. Romano-British ditches), for pottery – as opposed to flintwork – this is not thought to have been significant. Equally, Bronze Age ditches aside, pre-Late Bronze Age discrete features would still today generally be 100% dug on most sites and, therefore, such factoring will only be relevant to results from subsequent periods.

Compiling these 'periodic tables' takes considerable effort and we will begin by using data already assembled from a number of the Unit's long-term Fenland projects. Given their arguably marginal 'backwater' locale, one would anticipate that this should be a matter of striking contrast, and that they would prove poor in comparison to Mucking's Thames 'gateway' status (though, The Wash has also long been held as another key landfall-approach into southern Britain; e.g. Crawford 1912). As shown in Table 6.4, the opposite is, in fact, true.

This comparison is not entirely valid on two counts. First, its Late Bronze Age wares aside, Mucking's pottery totals of the periods listed are lacking weights and sherd numbers alone must be used. Second, of the tabulated Fenland projects, only Eye's fieldwork involved continuous area-wide stripping. Although cumulatively amounting to large-scale exposures, the others have been landscape excavations targeted at specific sites. The table strikingly demonstrates just how low much of Mucking's period-specific recovery/usage was. Indeed, in the case of the earlier Neolithic – both Mildenhall and Peterborough Wares – and Collared Urn/Early Bronze Age, it is the lowest of all these sites. With an average of 28.4 sheds per hectare for Deverel Rimbury, its Middle Bronze Age levels can be considered 'respectable' and would rank second along with Eye. What is, though, truly staggering is the quantity/density of Mucking's Late Bronze Age. Admittedly, some 80% of this material is estimated to have derived from the South Rings; nevertheless, even if dividing its *c.* 1512 sherds per hectare average by two to compensate for the 50%-excavation of most Late Bronze Age-attributed features on many sites today, this figure would still

*Table 6.5. Comparative 'scaled' project pottery frequencies, with red-highlight indicating highest period values (*from four Collared Urns; + combined value including some Early Saxon; ** it would that the majority of Planet Thanet's Early Bronze Age wares were Beaker, with 12 vessels and other decorated sherds recovered [Mucking's Beaker figure excludes the vessel in Grave 137]; ++ is predominantly of Early Iron Age attribution, excludes 261 sherds/1674g of Middle to Late Bronze Age date and 316/722g general/unidentified prehistoric sherds; sources: Germany 2007, Cooke* et al. *2008, Framework Archaeology 2006 and Rady 2010; note that this table's figures supersede those given Evans 2013, table 1, wherein an error was introduced into the Isle of Thanet values).*

	St Osyth's (4.5ha)		Stansted (33.7ha)		Heathrow (26ha)		Thanet Earth, Monkton (*c.* 47ha)		Mucking (18ha)
Pottery	**Sherd no.**	**Weight (g)**	**Sherd no.**	**Weight (g)**	**Sherd no.**	**Weight (g)**	**Sherd no.**	**Weight (g)**	**Sherd no.**
Early Neo.	4328 (**941.8**)	4720 (948.9)	165 (4.9)	659 (19.6)	787 (30.3)	2350 (90.4)	24 (0.5)	721 (15.3)	19 (1.05)
Peterborough	-	-	58 (1.7)	175 (5.2)	-	-	-	-	4 (0.2)
Grooved Ware	116 (**25.8**)	1662 (369.3)	4 (0.1)	6 (0.2)	62 (2.4)	184 (7.1)	30 (0.64)	105 (2.2)	283 (15.7)
Beaker	232 (**51.6**)	2190 (486.7)	19 (0.6)	34 (1.0)	1	-	856** (18.2)	5419 (115.3)	*c.* 65 (3.60)
C. Urn/EBA	350* (**77.8**)	10,650 (2366.6)	-	-	31 (1.2)	75 (2.9)	-	-	?2 (0.1)
MBA	1627 (**361.6**)	38,578 (8572.9)	3093 (91.8)	27,605 (819.1)	1582 (60.8)	16,281 (626.2)	264 (5.6)	2841 (60.4)	511 (28.4)
LBA/EIA	-	-	2892 (85.8)	18,975 (563.1)	2606 (100.2)	24,330 (935.8)	18,616++ (396.1)	n/a	27,215 (**1511.9**)
MIA	3784 (840.9)	50,566 (11236.9)	1569 (46.6)	10,731 (46.6)	3286 (126.4)	21,796 (838.3)			107,750 (**5986.1**)
LIA/Roman	-	-	29,359 (871.2)	245,619 (7288.4)	3263 (125.5)	36,550 (1405.8)	2914+ (62)	86,848 (1849.9)	*c.*145,000 (**8055.5**)
Anglo-Saxon	-	-	-	-	-	-			32,000 (**1777.8**)

be almost four and a half times greater than the next site (Eye; *c.* 164 sherds). Whatever factoring is applied, *there is no escaping the fact that something extraordinary clearly happened in Mucking's landscape during the Late Bronze Age*.

In order to further such comparisons, it is only appropriate that we now extend the scope to encompass similar projects within Essex itself and the Thames environs generally. To do justice to Mucking's sequence, the chronological range should be extended up to the Anglo-Saxon period (Table 6.5). Unfortunately, it has proven difficult to find many directly comparable projects, with the result that we have had to draw upon the results from some smaller sites (<10ha; e.g. Lodge Farm, St Osyth's) and which invariably will have a bias more towards the site core and be less reflective of wider landscapes.[6] Of those available, prior to the Late Bronze Age, St Osyth's leads on all counts (aside from Peterborough Ware-usage). As was the case with Figure 6.18, it is from that time that Mucking's finds/settlement densities clearly escalated and this remains true from the Iron Age to the Anglo-Saxon period. Yet, is this really the case? Given the intensity at which its ditch features were dug – when compared to much lower present-day standards – Mucking's numbers require factoring to compensate. If, as a rough measure, we say that approximately only a fifth of Mucking's finds from these periods would be retrieved today, then there would be greater cross-project comparison.[7] Even doing this, Mucking's values would still exceed the next highest site densities. At some 1197 sherds per hectare (as factored), it would be a third greater than St Osyth's Middle Iron Age pottery densities (840 per ha) and be just less than double Stansted's Roman level: *c.* 871 *vs.* 1611 sherds per ha.

Despite showing a somewhat more organised layout arranged around a trackway 'crossroads' (Germany 2007, fig. 30), in many respects St Osyth's Iron Age seems broadly comparable to Mucking's.

Its 19 round buildings represent a density of 4.2 per hectare – as opposed to the other three projects which all saw less than one – and is just below Mucking's density of 6.8 per hectare. In some ways, taking this approach risks losing sight of the scale of Mucking's settlement from the Late Bronze Age onwards and 'normalising' its sequence. St Osyth's base-plan looks as dense as parts of Mucking's, but it represents only a quarter of the area of Mucking's excavated site and its aerial photographic plot does little to inform us of just how far its settlement of this time extended (*ibid*., fig. 5). Equally, at least for those portions excavated, St Osyth's did not see subsequent settlement.

As emphasised by Champion above, the scale of Kent's recent archaeological exposures must also now inform Mucking's findings and, particularly, its 'Gateway' context. With an overview summary now issued (including the Channel Tunnel Rail Link findings; Williams 2007; see also e.g. Moody 2008), among its highlights would have to be the Beaker graves and ring-ditch monuments investigated along the *c*. 3km-long road-widening works at Monkton on the Isle of Thanet (Bennett *et al*. 2008). Also relevant was that investigation's evidence of second- to third-century AD Romano-British sunken feature buildings. (The latter prompted us to consider whether some of Mucking's *Grubenhäuser* might actually have been of Late Roman attribution.) Similarly, the recent publication of the Highstead Quarry excavations from near Chislet (1975–7; Bennett *et al*. 2007) adds further context. There, aside from extensive evidence of both Iron Age and Romano-British settlement (the latter including stout fence-line settings), most relevant is its evidence of Late Bronze Age occupation (Period 2, 900–600 BC). Across only *c*. 3.7ha, three separate settlement enclosures were investigated. Two were ovoid and one sub-rectangular; the latter was heavily ditched and, arguably, rampart-defended, and produced evidence of metalworking. This resonates with the findings from Kingsborough on the Isle of Sheppey, where, apart from two Neolithic causewayed enclosures (and Middle Iron Age-attributed compounds), three Late Bronze Age enclosures were present: one large and circular (*c*. 130m diam.; 1.3ha), with two successive and of smaller ovate plan (*c*. 0.21 & 0.28ha; Allen *et al*. 2008). Although yielding little direct settlement evidence, perforated clay tablets were recovered and the main enclosure was considered to be a ringwork comparable to Mucking's (see Champion above and 2007c, 100–10 concerning Kent's Middle–Late Bronze Age fieldsystems/enclosures and evidence of salt production).

The conscious interrelationship of Mucking and Framework Archaeology's Heathrow investigations (2006 and 2010) has been outlined in Chapter One and requires no further detailing. More relevant has been recent fieldwork in the north of Essex. There, expanding upon earlier work by the Essex County Council Unit (Havis & Brooks 2004), this has related to the expansion of Stansted Airport and the allied A120 development running east towards Braintree (Cooke *et al*. 2008; Timby *et al*. 2007). Largely by way of contrast, this is significant on two counts; both that it is representative of the region's heavier clay subsoils and, also, that it lies well beyond any Thames Gateway context.

Whilst substantive evidence of both Mesolithic and Neolithic activity was forthcoming, more surprising was the frequency of its Middle–Late Bronze Age settlement, given Stansted's clayland context (e.g. Cooke *et al*. 2008, fig. 4.41); the latter was all the more marked in light of the paucity of any Early Bronze Age usage. The airport's MTCP Site's Middle Bronze Age roundhouse settlement involved a ditched enclosure (*ibid*., 37–52), with sword moulds recovered from the A120's Greenfields Site (Timby *et al*. 2007, 44). Not surprisingly, given clayland recovery rates elsewhere in eastern England (see e.g. Evans *et al*. 2008 for review), there was a high density of Iron Age and Roman settlement. A number showed direct evidence of continuity, with the occurrence of formal Late Iron Age cremation burials (plus coinage) firmly attesting to the area's Aylesford-Swarling zone practices (see Chap. 5, Fig. 5.38 and Timby *et al*. 2007, 117–38; Cooke *et al*. 2008, 95–100; see also Hill *et al*. 1999 for overview). In contrast to Mucking and many of the other 'Gateway' investigation results, there was very little Anglo-Saxon occupation and only negligible evidence for earlier activity. More extensive were Medieval remains, with the cross-beam foundation of a windmill excavated at the A120 Clobbs Wood Site that was very similar to Mucking's (Timby *et al*. 2007, 164–9).

Beyond these major landscape-scale sequences, other specific-site exposures within the region could be compared, some of which have already been alluded to within the body of both this text and Mucking's Roman volume. Springfield Lyons (Neolithic, Late Bronze Age and Anglo-Saxon; Buckley & Hedges 1987, Tyler & Major 2005, Brown & Medlycott 2013), Little Waltham (Iron Age; Drury 1978b), Elm's Farm (Late Iron Age/Roman; Atkinson & Preston 1998) and even Iron Age/Roman Colchester (e.g. Hawkes & Crummy 1995; Creighton 2006; Crummy *et al*. 2007), as well as now also the Roman Springhead sanctuary complex and the Westhawk Farm roadside settlement in Kent (see Millett 2007, 160–1 & 164–5), could all be enlisted. Their vital statistics – variously pottery and/or building densities – would approach or even exceed those of Mucking's individual period values. Yet, this is not the point we are making here, and it is fully accepted that the specific-phase components of other settlements were denser or even more extensive.

However, *nothing approaches the long-term intensity of Mucking's settlement sequence*. All this emphasises that, from the late Bronze Age onwards, the site's densities occurred at a level indicating that its excavation cannot just be considered as some manner of generic landscape sample, but as documenting *a distinct long-term place*. Indeed, as will be further explored below, it can only be suspected that its 'enhanced' sequence bears the stamp of quasi-historical events.

Different Lives – Continuities, Territories and Power

Among the most extraordinary facets of Mucking's archives are the many drawings of its inhumations. There are hundreds; only a few have been included here (see Fig. 6.19; see, also, e.g. Figs. 4.39 & 4.65), and they feature more prominently in both the Roman and Anglo-Saxon Cemeteries volumes. With their bone not surviving, the bodies were rendered as stippled sand-stains.[8] Some of the depicted elements seem to bear little obvious relationship to the human body; on the whole, they have an odd otherworldly quality and are vaguely reminiscent of Australian Aboriginal X-ray-style paintings and pecked Scandinavian rock art figures.

Figure 6.19 provides a flavour of their illustrations, but really to do justice to them we almost feel that they should have all been included here as a gazetteer and shown not unlike this volume's roundhouses (see Chap. 4). Certainly, they amount to a striking body of imagery and their resonance is great. When amassed, these stick-figures embody the progress of time and testify to the many lives lived out on the terrace. As opposed to such homespun sentiment, their 'alien-style' suggests something other than just the 'hard' biological/scientific residues of the corporeal remains of the dead and conveys a sense of distance – *different lives*. Beyond this, their grave-good accoutrements also tell of something else. Ranging from the arrowhead-accompanied Beaker burials to Roman Grave 889's 12 pottery vessels (or the 11 lamps and eagle-headed finial respectively featuring within that period's Cremations 911 & 902) and the weaponry and fine glass vessels variously within some of the Anglo-Saxon graves, they speak of differential social status far more directly than can be extrapolated from the site's settlement features alone.

Apart from such questions, two issues loom large when overviewing Mucking's sequence: settlement continuity and the number of distinct 'communities' that may have occupied the length of the terrace at any one time. Both are obviously problematic, being dependent on definitions of 'category' and matters of scaling. Of the latter, the social will always have had broader linkages that led outward and off-site (i.e. 'no settlement is a terrace/island'). The excavation's *c.* 850m length would have amounted to only a limited 'world'. It could have been traversed within some 15–20 minutes, and we must be wary of confusing broader socio-cultural communities and immediate familial or occupation groupings. Chronology is also a factor: can we be certain that shared settlement foci of broad periods were actually directly contemporary? Were, for example, its four Beaker clusters successive or contemporary? Do they attest to four separate 'groupings' or just four 'visitations'? While thanks to the scale and character of Mucking's archaeology from, at least, the later Iron Age we can draw upon associated mortuary/cemetery evidence, however relevant this theme may be, 'hard' answers are unlikely, with everything here amounting to *interim knowledge*.

During the Bronze Age there is evidence of a seam across the site's central swathe (Fig. 6.20). This division might well have had its earliest expression in the two-fold grouping of the barrows: Numbers 1 and 8 in the south, as opposed to the main northern cluster (2–7). While for reasons that were outlined in Chapter Two it is impossible to know to what degree the Middle Bronze Age boundaries continued across the central area, the North Field's fieldsystem 'blocks' seem distinct from those in the south, and this divide would find further distinction in the site's later Bronze Age settlement zones. With the latter seemingly 'nestling' around the earlier barrows, at least in the north (the southern settlement zone rather seems to border the two such monuments there), the question here then harks back to Margaret Jones' Rings' 'territories'. In particular, whether that is to what the site's second millennia BC usage relates, with the activity in its northern third perhaps relating to the North Ring. However attractive such a rationale may seem, it is likely that the picture was more complicated than just a two-enclosure/-ringwork divide. As was explored in Chapter Three, the interrelationship between the North Field-area settlement and the South Rings would rather seem complementary: the former manufacturing salt-making equipment and/or rendering salt itself, with the South Rings re-distributing the product – *salt*.

This situation highlights just how difficult it is to draw firm lines around communities as regards matters of scale. At a basic level, there is equivalence between Mucking's two ringworks. While surely amounting to far 'more', they must essentially reflect defended farmsteads of the area's leading families, and relate to the control of salt and metalworking. As has been outlined in Chapter Three, along with sharing a basic constructional grammar – inhabited, near-perfectly circular enclosures of a certain size-range – and metalworking, they obviously related to a series of comparable enclosures within Essex and

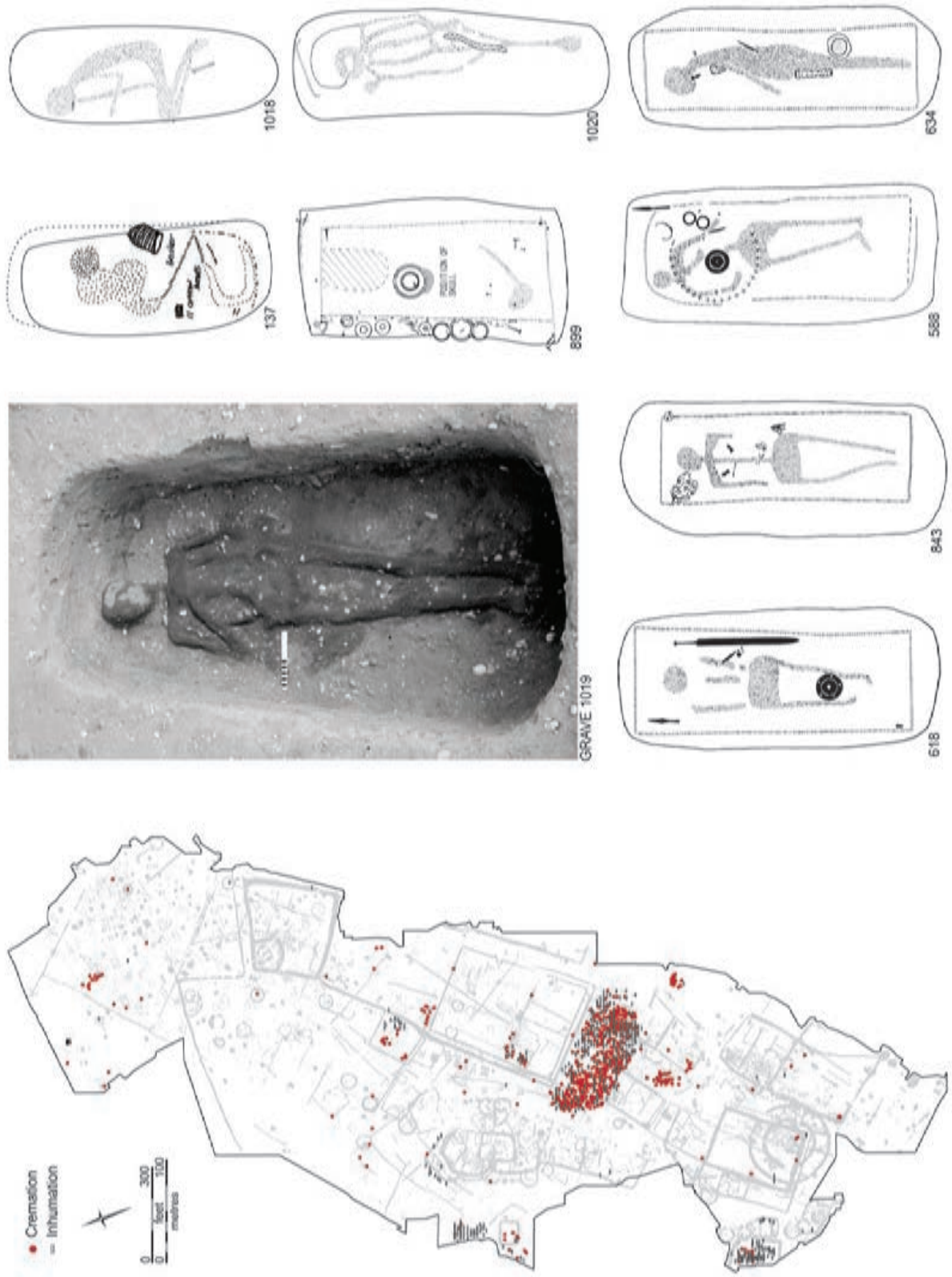


Figure 6.19. Sand Bodies: distribution of all site interments (all periods; left) and photograph showing Roman Grave 1019's skeletal impression; upper right, Beaker Grave 137 and various Roman burials (Graves 889, 1018 & 1019); bottom row, four grave-good-accompanied Anglo-Saxon inhumations (including weaponry and Grave 843's glass claw vessel; see Fig. 6.8).

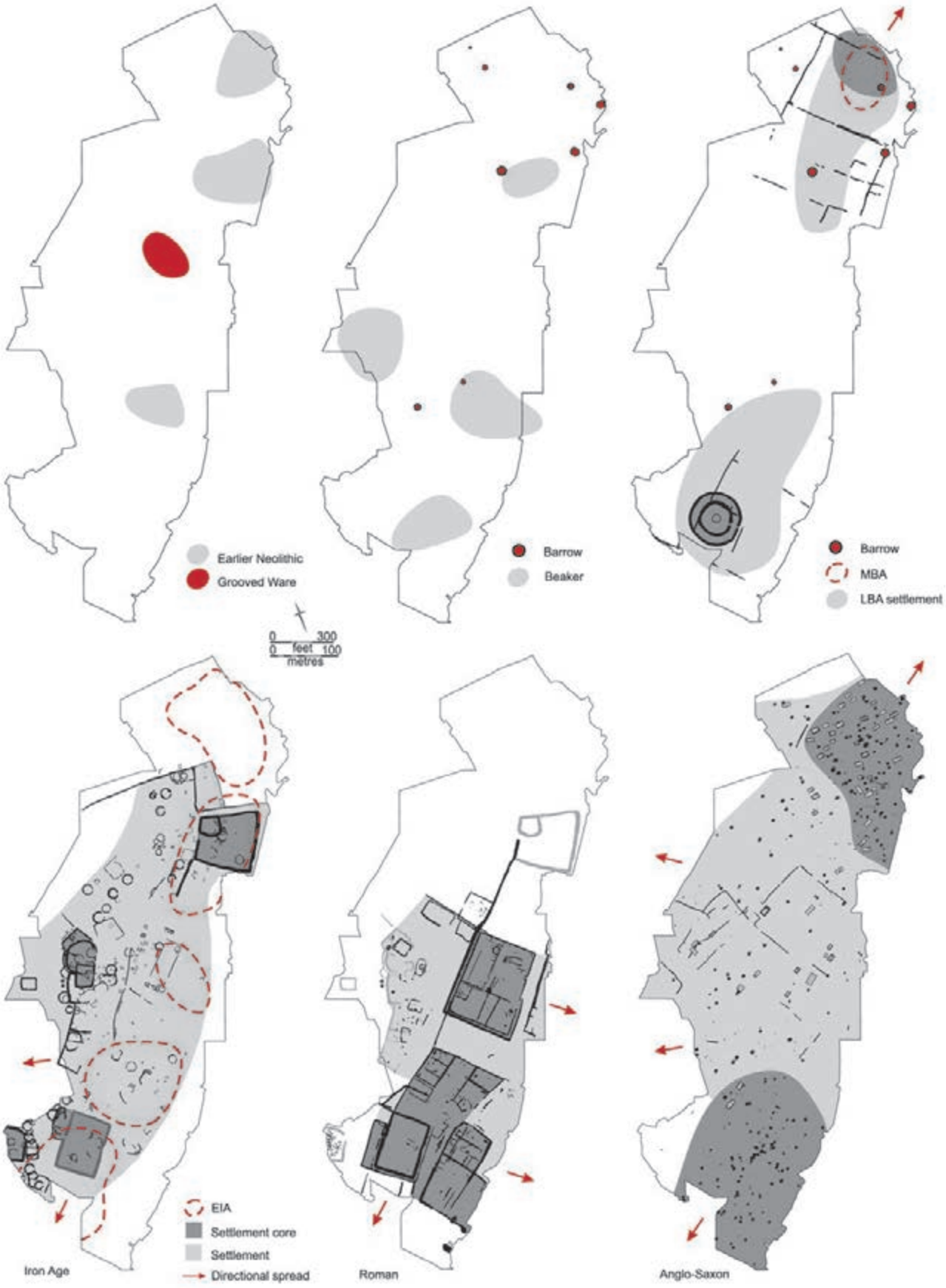


Figure 6.20. 'Territory'/settlement location by period.

Kent; therefore, they are also part of a much wider socio-cultural grouping. Indeed, as argued by Bradley (2007, 206–22), they could be viewed as resonating within an even larger later Bronze Age ringwork phenomenon spanning the whole of England and Ireland. Be this as it may, by their formal spatial layout and relationship to metalworking, at their heart they are probably best thought of as specific to the shores of the Lower Thames Estuary-area and their hinterland (i.e. a 'Gateway' phenomenon; Fig. 3.39).

The Middle/later Iron Age presents a relatively coherent landscape-settlement picture (Fig. 6.20). Attended by other 'isolated'/unenclosed roundhouse settings, its four main compounds – the Belgic Banjo Area and the ABC, North and RBI Enclosures – seem generally representative of broader area 'settlement fabric' distributions. That said, there also seem to be terrace-specific distinctions, such as their closer interval and that while the more 'organically organised' western compounds were oriented eastwards (the ABC Enclosures and the Belgic Banjo), the two more formally rectilinear ones both faced west (RBI and the North Enclosure). In fact, the argument could be mounted that all the enclosures were arranged around The Plaza's ceremonial space. Yet, by the time it was laid out it is unlikely that the ABC Enclosures *per se* were any longer maintained; in their origins, they all pre-dated the establishment of The Plaza. However, given its special character and the spatial integration between it and the Belgic Banjo complex, and probably also the RBI and North Enclosures, it is reasonable to presume that by the first century BC all of the terrace's households were participating in one 'community'. Indeed, it is likely that its social connections and relationships were far more extensive. The Plaza's prominently stored grain supplies were probably drawn/commanded from further afield – and could have been traded out still further – just as some of the terrace's households may well have also participated in off-terrace marshland foraging and/or pasturage cycles. At the same time, with its square barrows, cremations, coins, brooches and other quality metalwork, the later Iron Age terrace community would have also participated in still wider 'Aylesford-Swarling' networks, and its 'elite' – however, relatively lowly – may have had various links to Camulodunum and, even, Gaul.

The most obviously coherent spatial unification of the site's settlements occurred during its Roman phases. Although as related above, there is evidence of specific area/'quarter' functions – the industrial activity at the Western Enclosures, the civic/'control' role of the 'Central'/Double Ditch Enclosures and the Southern Enclosures' settlement/industrial focus – these evidently complementary components clearly knitted together as whole and were interlinked by the shared axes of its extensive boundary and roadway system. That said, social distance/distinction is certainly suggested by its separate cemeteries, with Cemeteries I and II having the richest burials (aside from Cemetery IV's stone coffin burial).

Interestingly, (as outlined in its period summary-entry above, following Tipper's 2004 arguments) it is possible to see the terrace's Anglo-Saxon usage as reflecting a pattern of two contemporary settlements not unlike that of the Late Bronze Age, with separate nuclei at either end of the site, broadly delineated by the period's mid-field cemeteries. Regardless of whether the paucity of post-built structures in the evidently earlier southern core reflects differential site-recovery conditions, there can be no doubt that there were distinct concentrations of *Grubenhäuser* at both the site's northern and southern ends. Yet, Hamerow (1993) saw Mucking's multiple settlement foci as reflecting the gradual northward shift of a 'wandering hamlet'. There is no ready answer to this issue and its resolution is beyond our remit here. It should, though, be noted that the sustained use of the period's two cemeteries – from which the settlement core-areas stood well back – would perhaps better favour a two-settlement model. Equally, based on the modelling conducted above, its intensity of occupation, with perhaps 100 adults per generation, could also suggest something other than just a shifting hamlet, with 'village' seeming a more appropriate term (see, though Note 4 above).

We turn now to the issue of the terrace's settlement continuities. This really only comes to the fore during the Late Bronze Age, when the location of the site's northern settlement-area suggests a direct interrelationship with that of the preceding Middle Bronze Age. Largely a 'void' category prior to the current project, this has now also been shown to be the case for the Early Iron Age. Accordingly, there was probably direct Late Bronze/Iron Age settlement continuity, with the terrace's community numbers rising thereafter.

Progressing to post-prehistoric times, the site's sequence would certainly speak of direct Iron Age/Romano-British continuity. This is attested to in a variety of ways. Not only does this include the continuity of settlement/'usage' of the RBI and Belgic Banjo Enclosures, but also the maintenance of both local wheelmade pottery and roundhouse-construction traditions. Perhaps most telling is the obvious respect afforded to The Plaza's ceremonial complex in the layout of the subsequent Roman Double Ditch Enclosure. Although the settlement experienced a marked decline from the mid third century AD, it clearly was not entirely abandoned. Based on its coin-data, it evidently saw some degree of utilisation throughout the fourth century and its latest coinage dates to AD 402. It would now seem

that Mucking's earliest Anglo-Saxon occupation overlapped with the Roman and probably occurred during the later decades of the fourth century AD. Again, therefore, some continuity is attested to, even if a portion of the site's inhabitants may have been 'new arrivals' (see below).

With the northern settlement swathe associated with salt production and the South Rings evidently seeing bronze casting during the Late Bronze Age, the site's Iron Age only saw minimal direct evidence of any household-specific specialisation: really only Roundhouse 104's metalworking, with textile manufacture being more widespread (metalworking then being, though, generally associated with the Banjo and the North Enclosure). The same range of production was also documented on the Anglo-Saxon settlement (Hamerow 1993, 15–19, figs. 9 & 10), with a brooch mould in one of the *Grubenhäuser* (GH109; Webster in Hamerow 1993, 62–3) – and the corresponding brooch found in one of the cremations (No. 942; Hirst & Clark 2009, 344–5, 765) – unequivocally demonstrating on-site metalworking. Against this background of craft activity, the site's Roman utilisation saw a marked broadening of specialist activities and 'roles', as is meant to be conveyed by Figure 6.21. Admittedly, its military equipment would find some parallel in the site's much greater quantity of Anglo-Saxon weaponry. That said, the Roman settlement's pottery industry was certainly specialised and of an entirely different order to what went before and after. Obviously in part intended for trade, further evidence of the period's commerce could be inferred by its steelyard balance. Some degree of literacy would be attested to by a stylus and by pottery graffiti, with civic office functions suggested by two seal boxes. These activities may have been facilitated by the site's lamps, with the period's lock and keys indicating a 'world' where not everything was open and accessible. Adding to this the evidence of its figurative statuary, Mucking's Roman usage clearly saw a much greater range of activities and roles – of which many more could be inferred (e.g. butcher, metalworker and, perhaps, a priest and serfs/slaves) – than during the periods that bracketed it.[9]

As to the Anglo-Saxon settlement, the Christmas card-like reconstruction image that features on the cover of Hamerow's 1993 volume (see Fig. 6.29 below) sits uncomfortably with the quantities of weaponry within its burials, although this dichotomy is common in the Anglo-Saxon period. Although there are certainly richer graves, it is difficult to correlate them with the site's settlement evidence. As discussed by Tipper (2004), the finds within its *Grubenhäuser* fills largely derived from middening and distant sherd-refitting indicates that refuse was clearly being redeposited in a manner that precludes any one-to-one relationship between buildings and finds. Nor is there direct evidence with the post-built structures of any kind of distinguished building to indicate either a central communal function or a residence of elevated status. In short, whereas the burial evidence points to social distinction, it seems impossible to wed this with the period's buildings.

Given the greater variability of the site's Roman structures (Fig. 6.22), their lower numbers and that period's more formally delineated social space – and the more direct proximity of its many cemeteries to its settlement components – there are stronger grounds for postulating linkages between burial and settlement. By way of example, if inferring that the wealth of material from Well 4 related to the nearby large apsidal-ended building (R-B Structure 7; Figs. 6.22, 6.23 & 6.25) and, thereby, that it was a high status residence – the Estate overseer's household – then it is reasonable to associate it with the richer burials within its adjacent cemetery (e.g. Cemetery II's Graves 892, 899, 903, 911 & 920; Fig. 6.8). Proposing this, we must, of course, be wary of the potential pitfalls of naively reading grave-good evidence and assuming that there was necessarily a one-to-one relationship between an individual's display in death and their previous status amongst the living (e.g. Parker Pearson 1999).

Having explored specific issues relating to the terrace's sequence, we now return to the themes of social hierarchy and when, over time, the site became 'special' – how, why and what was its basis? To this end, Figure 6.24 broadly characterises Mucking's sequence from the earlier/Middle Bronze Age onwards. As outlined above, there are solid grounds for assuming a degree of direct settlement continuity over this span (at least until the Late Roman period). Although we are well aware of its inadequacy, we have here used the term 'settlement fabric' to denote when the terrace's usage can be considered typical of any period. Accordingly, while the barrow and fieldsystem landscape of its earlier/Middle Bronze Age certainly marks a significant change from what went before, it can essentially be considered representative of its time, when such land-use organisation was widespread across much of southern England (see e.g. Yates 2007). By the same measure, the site's Iron Age prior to its 'Late' expression is also assigned to a 'settlement fabric' level, there being nothing that particularly distinguishes its various enclosure compounds.

We are fully aware that approaching Mucking's sequence in this manner risks overlooking earlier expressions of social hierarchy – which are almost invariably prone to be ambiguous – and certainly we do not deny its possibility. Is this, for example, what lies behind the deposition of arrowheads in Beaker Grave 137? Do 11 barbed and tanged arrowheads attest to 'power' or just an accomplished archer?

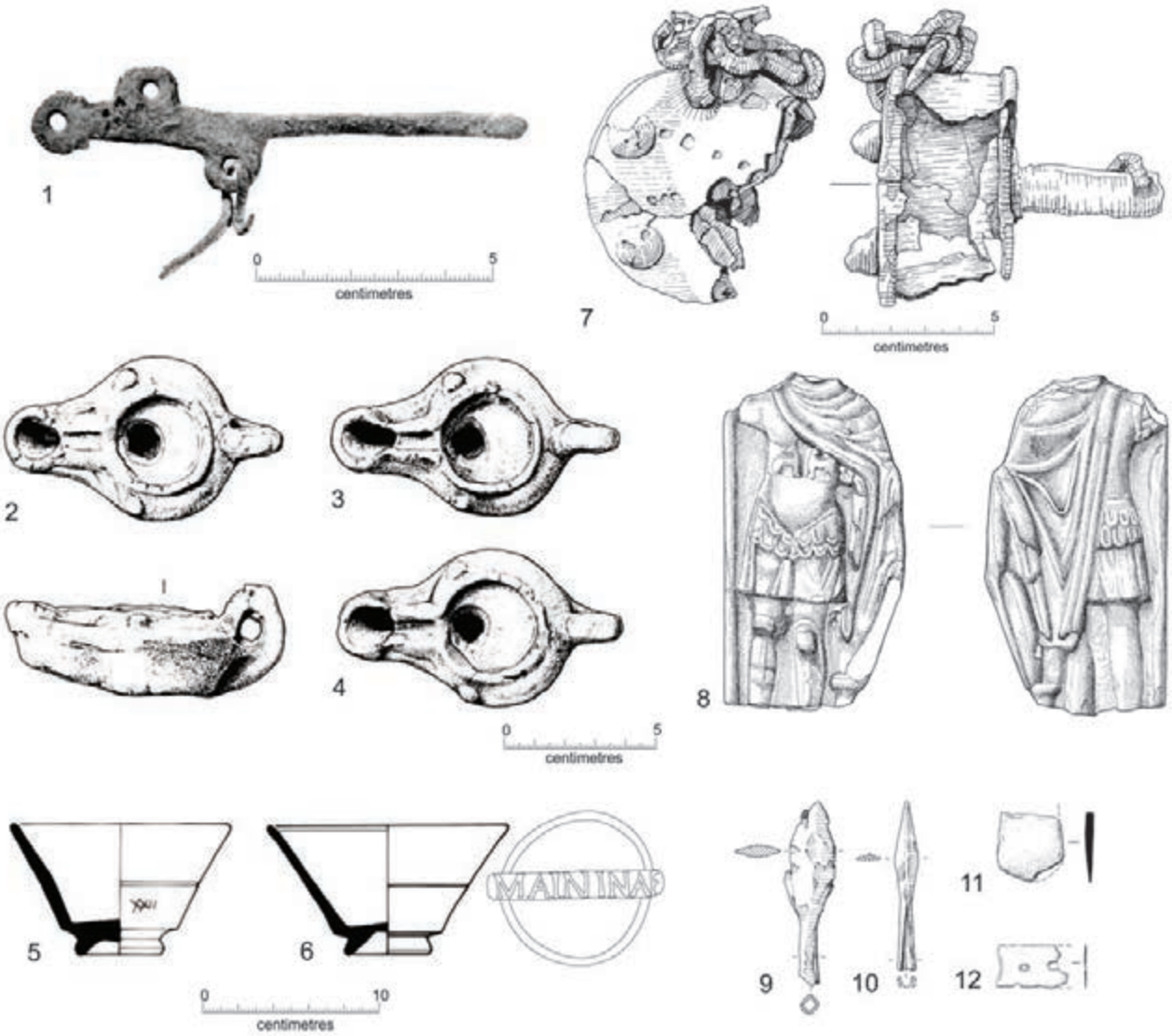


Figure 6.21. Diverse Roman 'roles' and functions: 1) steelyard (residual within Grubenhaus *55); 2–4) lamps (Cremation 911; see Fig. 6.6); 5 & 6) stamped and graffiti-marked pottery (Grave 899; see Fig. 6.19); 7) lock (Fe 3383, North Enclosure); terracotta figure of Mars (385N × 520E, 'Enigma'); 9–12) military equipment, including iron projectiles (9: Double Ditch Enclosure; 10: Well 7), lorica squamata and lorica segmentata scale-armour fragments (11: 263, 505N × 436E, pit; 12: 308, 796N × 656E, Windmill-area).*

Equally, although none of the interments within the site's barrows were richly accompanied, their construction would have required coordinated labour, and the same is also true of the site's Middle Bronze Age fieldsystem. These, in other words, cannot have somehow just been 'spontaneous' expressions of a community.

Against this background – and obviously resonating with the wider Thames Gateway distribution of Late Bronze Age ringwork enclosures – the establishment of both the North and South Rings as effectively defended farmsteads, would seem an unequivocal expression of social hierarchy. Seemingly related to the control of metalworking and salt distribution, this was relatively short-lived, if the South Rings sequence is correctly read. With its strict concentric organisation (and unparalleled inner circle) it seems unique (Fig. 6.25.1–2). It clearly went on to become something else – arguably, some form of larger communal monument – to the point that the only ready, if partial, parallel for it is Thwing in Yorkshire (see Fig. 3.40). The manner of the South Rings' development and what it potentially became undermines any notion of *regular* ringwork 'territories'. They clearly were not just a direct by-product of the potential agricultural surplus of their immediate landscapes, but related to access to longer distance trade/exchange and communication.

Leaving aside the one very large Early Iron Age roundhouse (No. 39; Fig. 6.25.3), after some five to

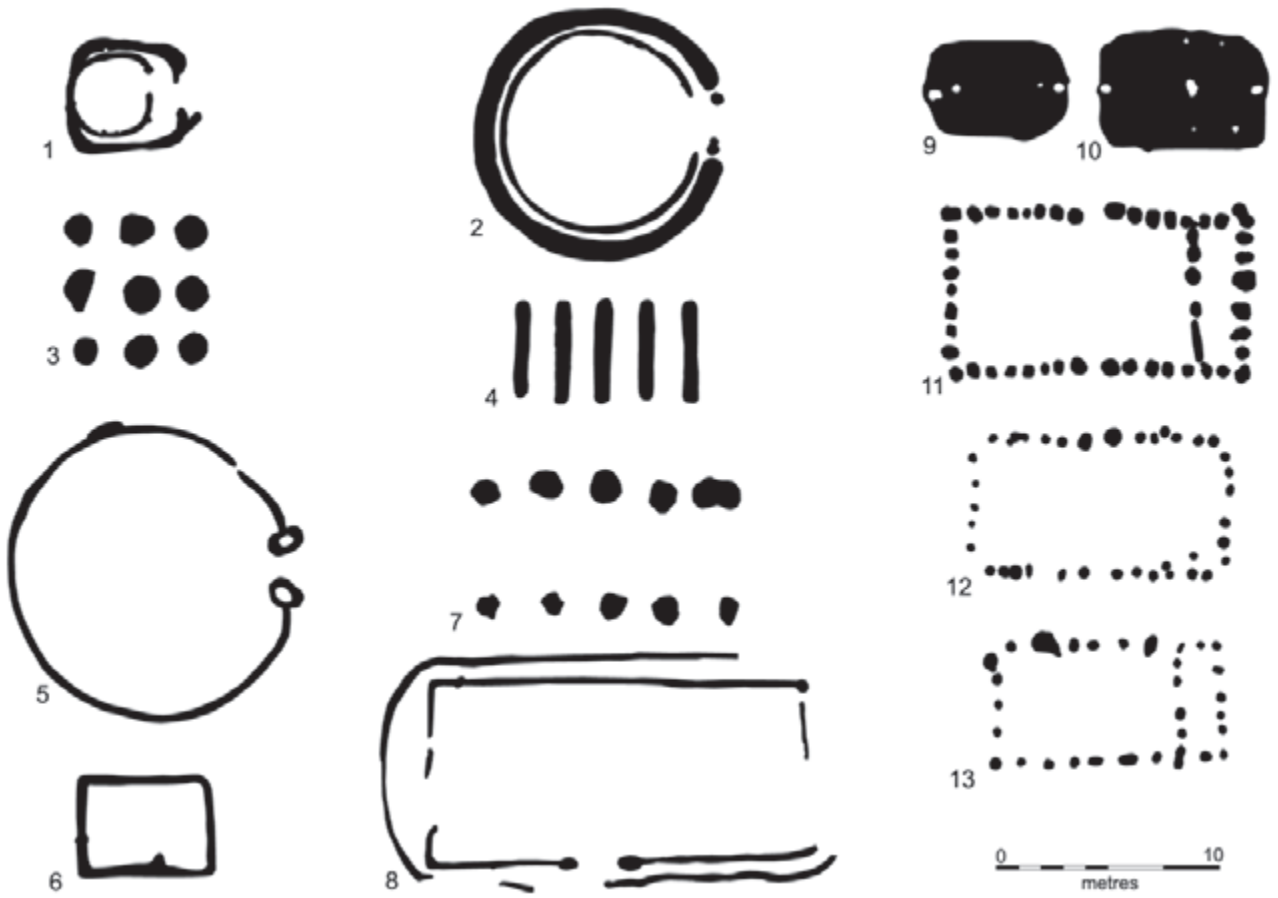


Figure 6.22. Comparative Buildings: 1 & 2) ?Shrines, 'Roundhouse' 75/76 (Late Iron Age; 1) and 71 (Roman; 2); 3 & 4) Granaries, later Iron Age nine-poster (PS56; 3) and Roman Structure 1 (4); 5) later Iron Age Roundhouse 89; 6) Late Iron Age/Conquest Period rectangular buildings (Roman Structure 6); 7 & 8) Roman aisled barn (Structure 9) and 'Overseer's House (Structure 7); 9–10) Anglo-Saxon, Grubenhäuser *169 & 179 (9 & 10; after Hamerow 1993, figs. 68 & 69) and 11–13, Posthole Buildings 1, 3 & 4 respectively (after ibid., figs. 54 & 55; note, to same scale but not orientation).*

seven intervening centuries, the next extraordinary 'thing' within Mucking's sequence was undoubtedly the later Iron Age's Plaza complex (Fig. 6.25). With its square barrow-arrays linked by its 'street' of granaries – some of quasi-monumental proportions – its basis differed insofar as it must have been rooted in *centralised grain storage*, as fully outlined in Chapter Five. Nevertheless, with the only immediate, if approximate, regional parallel for its overall arrangement (but not its individual components) being the Fison Way complex at Thetford (Gregory 1991), The Plaza seems comparably outstanding. Yet, the degree of hierarchy it represents appears to have been of a relatively low level. As opposed to what has been argued to be the communal basis of earlier/'Middle-phase' hillforts and their defended centralised grain storage, the basis of Late Iron Age hierarchy is thought to have been more individually focused and to relate to the control of trade (e.g. Sharples 2010). Although the terrace saw little 'status' metalwork of the period and had only handmade imitations of 'quality' wheelmade pottery vessels, The Plaza's array of granaries would not have been out of place in a hillfort. It could be suggested that the basis of any local power remained rooted in agricultural production and not long-distance trade. But, as fully outlined in Chapter Five, it is difficult to imagine that the storage capacity of the granaries was intended only for produce from the immediate terrace-area and it is likely that it was drawn from further afield (see e.g. Fig. 5.34). If so, the question then becomes, to what purpose? Was it just a matter of local territorial redistribution or could it itself have been the 'stuff' of longer distance trade?

The most obvious claim for any kind of 'seat of power' amongst the site's Iron Age households would have to be the North Enclosure. Apart from the relatively formality of its spatial layout and the scale of its buildings (Fig. 6.25), this would essentially derive from the quality of its metalwork, especially its La Tène-style pieces. Also pertinent would be the fact that it had the only evidence of any possible salt production from that time as well as its possible metalworking. The latter appears to

resonate with the nearby Roundhouse 104/Enclosure 18's apparent evidence of specialist production, and the latter's proximity could even tell of a clientage relationship. Admittedly, although suggesting a distinct or 'elevated' residence, the North Enclosure does not seem very 'special'. This could accord with the limited status expressed within accompanied cremation burials of the period at the site, which certainly fell well short of the richest known within the region.

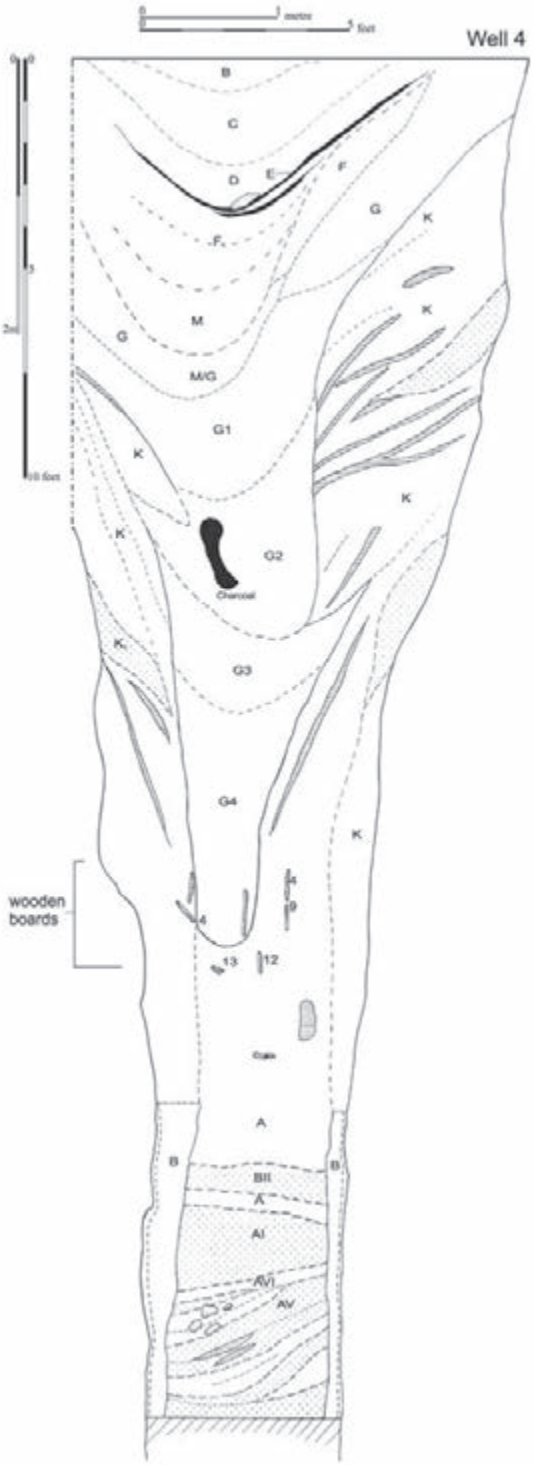
There is a potential contradiction in seeing the North Enclosure settlement as the controlling force behind The Plaza's resources and social basis, as it clearly had been established long before the first century BC advent of that ceremonial/storage complex. By layout and components (e.g. square barrow cremations), it would have to be associated with the Aylesford-Swarling 'phenomenon' that then occurred throughout the region through contact with Gaul. It can only be presumed that this, and the impact of changing or new political alliances, gave rise to the need for such grain surplus and its centralised control. In this capacity, it is probably more appropriate to attribute The Plaza to the Belgic Banjo and its Stages I and II layout (Fig. 4.62). While its main house, Number 67, did not itself appear particularly distinguished, the quantity of Late Iron Age metalwork and activities associated with the main enclosures of that complex (Nos. 9–11 & 21) – metalworking and possibly pottery production – certainly were.

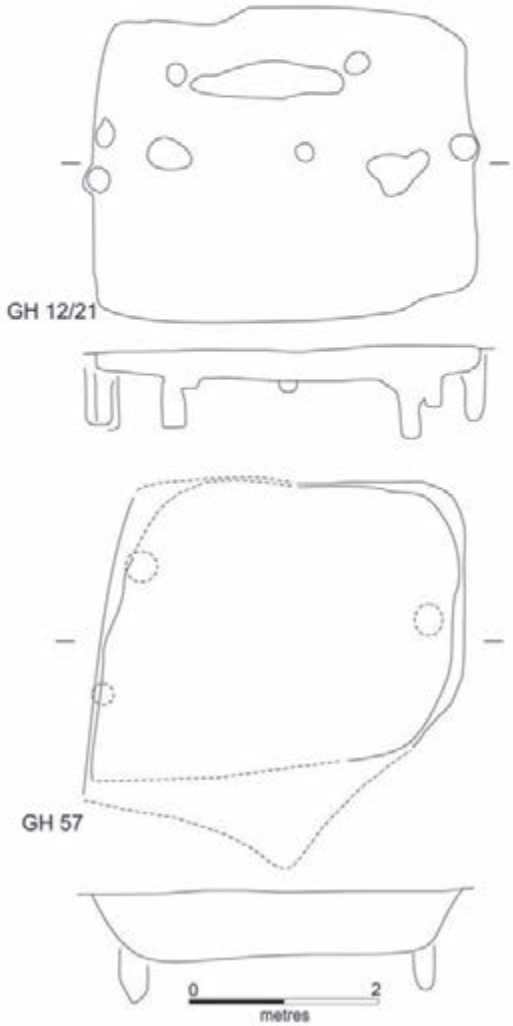
As mentioned, it was only by appreciating the basis of the site's later Iron Age – particularly The Plaza – that its subsequent Roman phases became more fully understood. While there are indications of high status – its rich burials and Well 4's extraordinary assemblage – there is certainly no evidence of there having been a villa on the site. Although the 'Central'/Double Ditch Enclosure's long apsidal-ended structure (No. 7) is distinct and was probably the source of that well's material and Roman Cemetery II's rich graves (Fig. 6.25), it does not amount to a villa as such. As shown on Essex County Council's reconstruction figure (see Fig. 6.29), the 'back-space' north of it is depicted as a fenced garden plot; this we now know is simply wrong. The key point is that, aside from Roundhouse 71 (and Structure 8), nothing really occurred within that area and the Iron Age ceremonial/ritual ground largely remained as 'reserved' space. Albeit on negative grounds, this is extraordinary in itself. What is crucial to understanding the site's Early Roman usage is that amongst the first structures erected within the 'Central'/Double Ditch Enclosure (both just east of The Plaza-area) were two arguably relating to grain storage: Structure 2/9's aisled barn and Structure 1's raised granary. Surely amounting to a direct continuity of centralised grain storage from the preceding, later Iron Age 'Granary Row', the control of grain surplus was also clearly the 'driver' here (Figs. 5.34 & 6.26). Given this, it then only seems logical to see that enclosure's long building – Structure 7 – as marking the overseer's residence in what was, in effect, *a supply-based Estate Centre*; an imposed institutional basis of power, exploiting already established local networks, and which may have involved a limited military presence. Also involved in industrial-scale pottery production and presumably also supplying other produce (?meat and hides), there is no indication of its direct participation in or control of the area's salt trade. Indeed, the settlement's effective mid third century demise coincides with when mass-/export-scale salt production occurred at the nearby Stanford Wharf Site (Biddulph *et al*. 2012).

Lastly, there is the site's Anglo-Saxon. Leaving aside the chronology of its advent (and probable causality; see below), in themselves its components are not particularly 'special'. Although many of its burials were richly endowed, its basic settlement

Figure 6.23. (opposite) Crucial Inventories – Located within the Central Enclosure, Well 4's assemblage attests to the relative wealth of the second-century Roman settlement and, particularly, reflects on the status of its 'Estate Centre overseer'-usage. Though excavated to c. *11m depth, the feature was not bottomed, most of the finds occurring within the uppermost 2.5m of backfill. There were 60 pieces of copper alloy, including fragments of bronze jugs, strainers and personal items, which represents 32% of the site's total copper alloy assemblage (two iron cart fittings and two snaffle/bit fragments were also forthcoming from it). In addition to 1.4 tonnes of burnt daub, there were also approximately 6000 sherds of pottery, including just over 1100 pieces of samian representing c. 42% of the site's total samian assemblage (*c. *18% of the well's pottery as a whole).*

Late Roman material was found in numerous Grubenhäuser, *notably in the southern zone (Hamerow's Phase A; 1993, fig. 50). Consisting of 69 structures, of these 31 contained one or more Roman artefacts (excluding pottery), ranging from coins and brooches to belt fittings and bracelets (metal and shale), with vessel glass coming from 16 buildings (a piece of window glass was also found). Three* Grubenhäuser *stand out for their quantities of Roman material. GH12/21 (185N × 138E) contained, in addition to 171 sherds of pottery, three glass bottle fragments, the window glass, a late fourth-century coin and two brooches; the fills of GH55 (291N × 431E; not shown) yielded the bowl of a copper alloy spoon/scoop and a copper alloy steelyard (see Fig. 6.21.1; plus 22 sherds of pottery). An even more substantive Roman assemblage was recovered from GH57 (110N × 475E). Apart from 23 sherds of pottery, this included 22 third- and fourth-century coins (AD 259–378), a Late Roman belt attachment, four sherds of glass, a possible copper alloy fitting and a copper alloy penannular brooch.*





architecture is now paralleled on many sites. What marks it out though is its sheer size, both the number of its structures and graves, from which it can be estimated that it must have been of 'village-scale'. Based on the size of its resident community (when compared to that of the preceding Roman settlement) there simply seems no way that it arose from the immediate landscape-area and – by whatever mechanism – it must mark a major 'arrival'.

There is nothing in Mucking's generic Thames-side setting, on a terrace overlooking the marsh, that would entirely account for the overall intensity of the site's sequence. That said, its location and longer distance 'proximities' become increasingly crucial in understanding its proto-historical development. Located *c.* 50km downstream from Roman London and 55km southwest of Colchester (75km by water), *via* the Tilbury Crossing it fell only roughly 75km

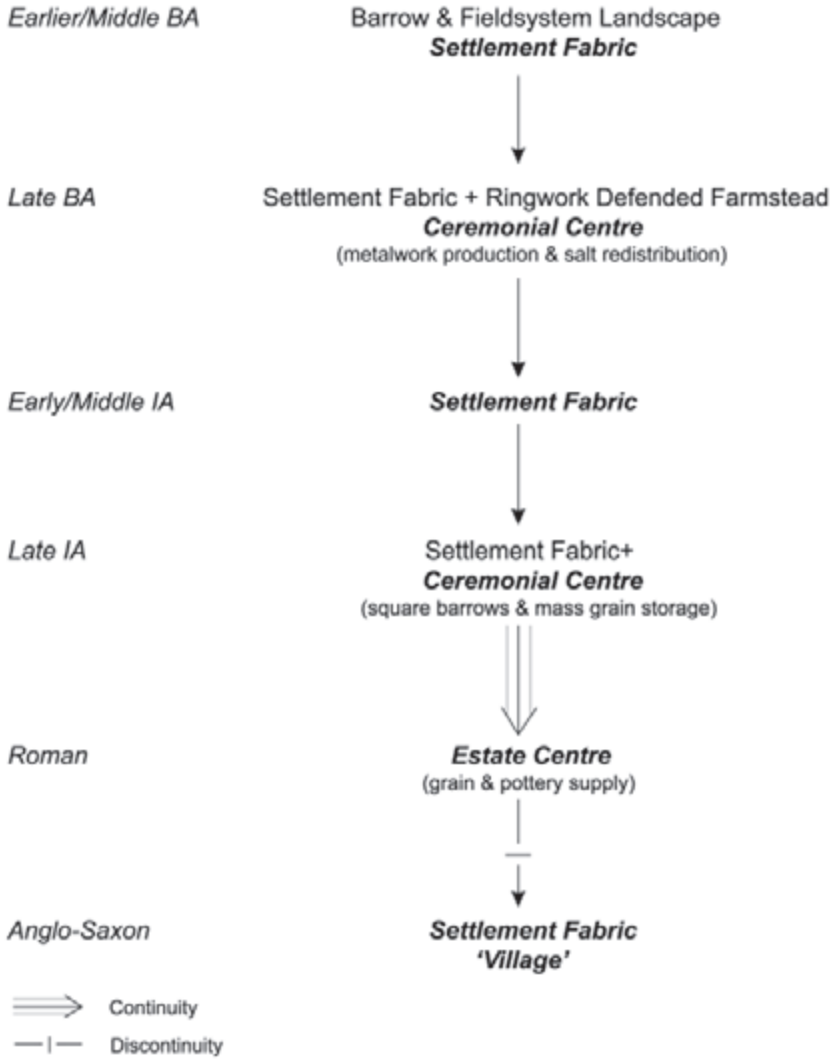


Figure 6.24. Period-settlement continuities and 'caricature'.

from Richborough. Equally important would be its North Sea/Channel Zone context and that it also only lies some 125km from the French Coast; if projected inland – as the 'crow flies'– this would equate with its distance from Oxford (Mucking's distance to the Frisian Coast being more than twice that).

Given this, the prospect of population arrivals – especially Roman and Anglo-Saxon, plus now a potential French connection in the Late Iron Age through Mucking's square barrows (see Chap. 5, Figs. 5.39–40) – can be considered a real possibility, as must also direct cross-channel trade/exchange for both those and earlier periods. As outlined in Chapter Three, particularly relevant for the latter is the extent to which in recent years cross-channel Bronze Age ties and linkages have been (re-) emphasised (e.g. Bourgeois & Talon 2009; see also papers in Lehoërff *et al*. 2012).[10] Seeing Mucking in this perspective is challenging, as it situates its sequence beyond the 'comfort zone' of too readily assumed settlement continuities and strictly local influence. The most obvious potential expression of this is Mucking's many Late Iron Age and Roman cemeteries with their various burial rites. The sheer number of the site's discrete Roman cemeteries (five) could here be cited; their separation/character raises the possibility of distinct population groups and complex social relationships (i.e. locals and 'outsiders'), though unfortunately Mucking's poor bone preservation precludes any scientific testing to this end.

Having established the broad framework of the site's sequence, there is a temptation to directly impose historicist readings on, at least, its proto-historical phases. This we will not do, but such arguments deserve acknowledgement and airing. In reference to The Plaza's extraordinary array of major granaries, Strabo's comments concerning Britain's supply of grain to Gaul could even be rehearsed (IV.5.2; see Ireland 1986, 20). Further, and in relationship to the Conquest Period layout, some of its Roman military metalwork and what seems to be the regularly planned character of Enclosures

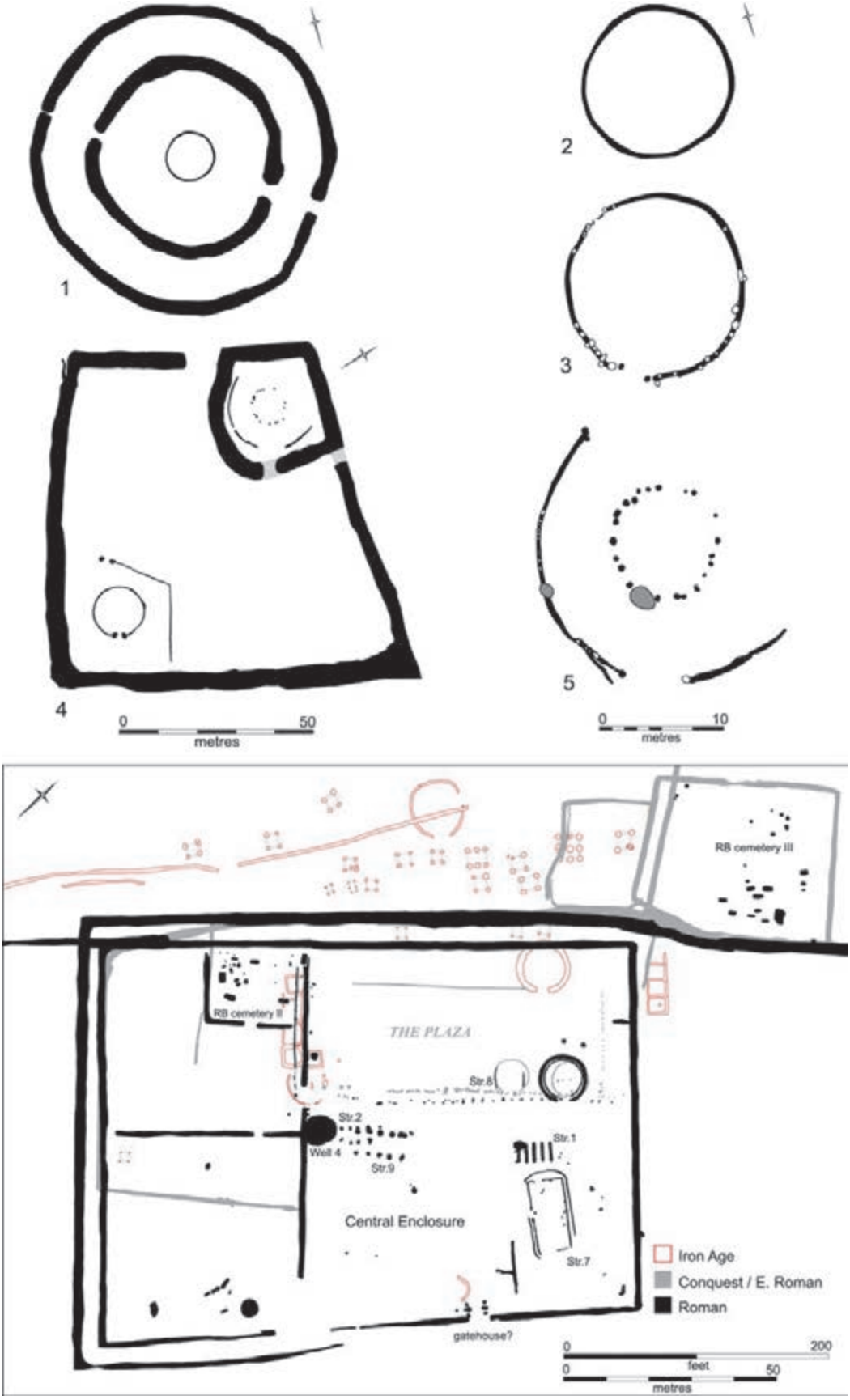


Figure 6.25. Extraordinary Things: 1 & 2) South Rings, with Inner Ring detail (2); 3) Roundhouse 39; 4 & 5) North Enclosure with Roundhouse 110 detail (5); bottom, the Late Iron Age Plaza with Roman Double Ditch Enclosure elaboration/avoidance (i.e. 'void zone').

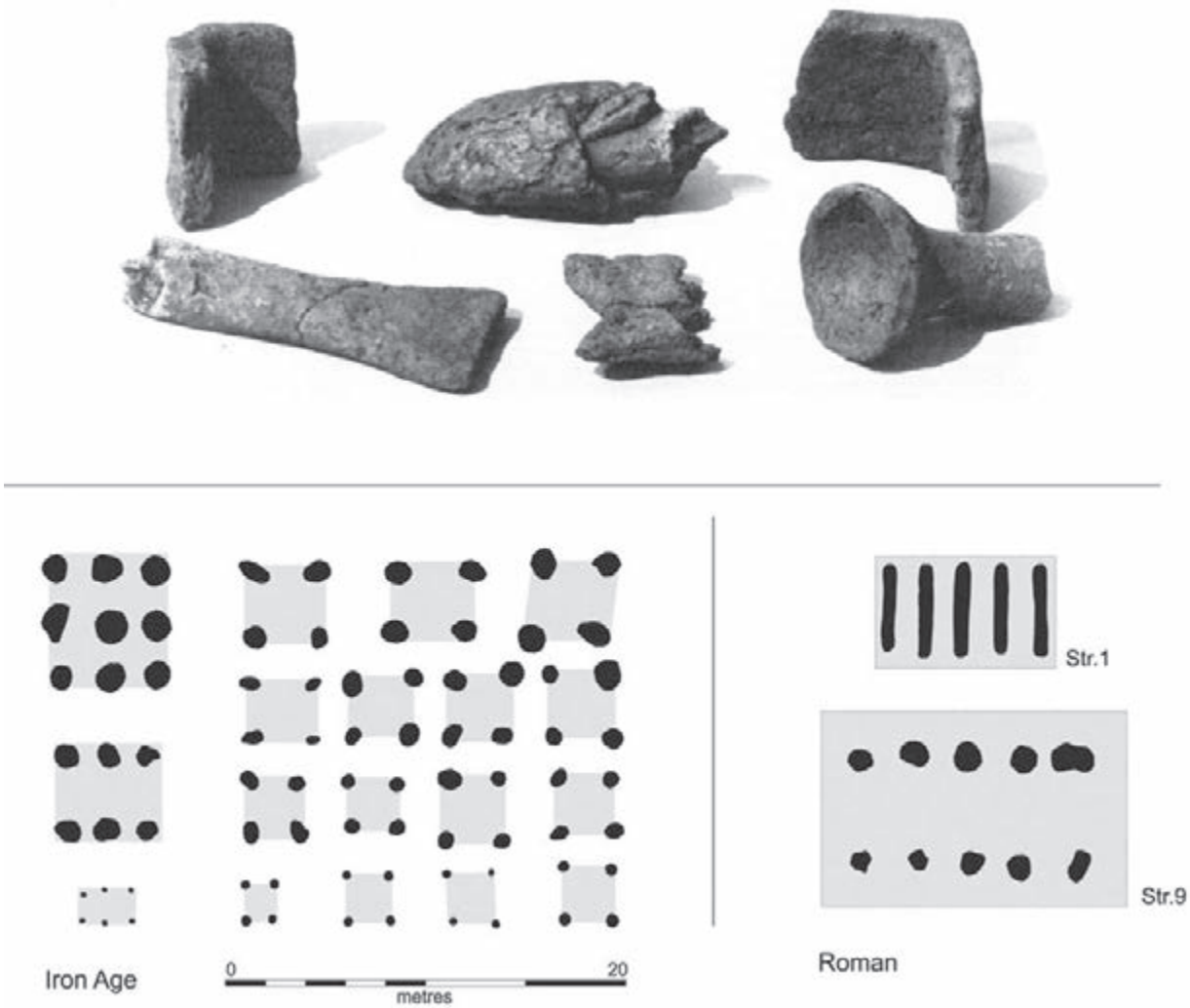


Figure 6.26. Sequence 'Drivers' – Salt & Grain; top, main briquetage types (from Jones 1977); bottom, grain storage capacity, showing the collective footprint of the Plaza's 'Granary Row Posters' compared to the Double Ditch Enclosure's raised granary and aisled barn (Structures 1 & 9): 158 vs. 107sqm respectively.

20 and 21 – along perhaps with a reinvestment of the RBI Enclosure – could be attributed to an army presence, perhaps in the immediate aftermath of the Boudican Rebellion (with, thereafter, there perhaps being no more than a guard-duty detail associated with the estate overseer's functions).

Margaret Jones's original *feoderati* arguments concerning the site's Early Anglo-Saxon occupation even warrant review in this regard. This stems from the occurrence of Late Roman material in the site's southern-area *Grubenhäuser*. Based on the high representation of this material in Anglo-Saxon contexts (particularly Portchester D wares) it would actually seem that Mucking's earliest Anglo-Saxon usage overlapped with the last decades of Britain's Roman occupation and could have occurred as early as the later decades of the fourth century. Mercenary-settlement arguments cannot, therefore, just be dismissed out of hand and – if drawing on allusions to Reculver's Thames-side fort in Kent and the defence of the Saxon shore (Philp 2005; Millett 2007, 150, 180–1 & fig. 5.9) – are perhaps not so entirely outrageous as they have come to be considered.

Yet, while the site's interpretation needs to be informed by such quasi-historical phenomenon – possible 'arrivals'/movement, warfare and political turmoil – we must be wary of directly embedding such event-led determination within its sequence. This must remain, in effect, as a parallel perspective on the evidence itself. It is, nevertheless, only appropriate that we conclude this discussion of the site's sequence with Figure 6.27. It attempts to portray the root of what is so extraordinary in Mucking's long-term sequence: first, the Iron Age Plaza's obvious determination of the Roman Double Ditch Enclosure's 'empty ground' and, then, the fact that Anglo-Saxon Cemetery II came to be sited tight along the latter's southern perimeter. These interrelationships seem

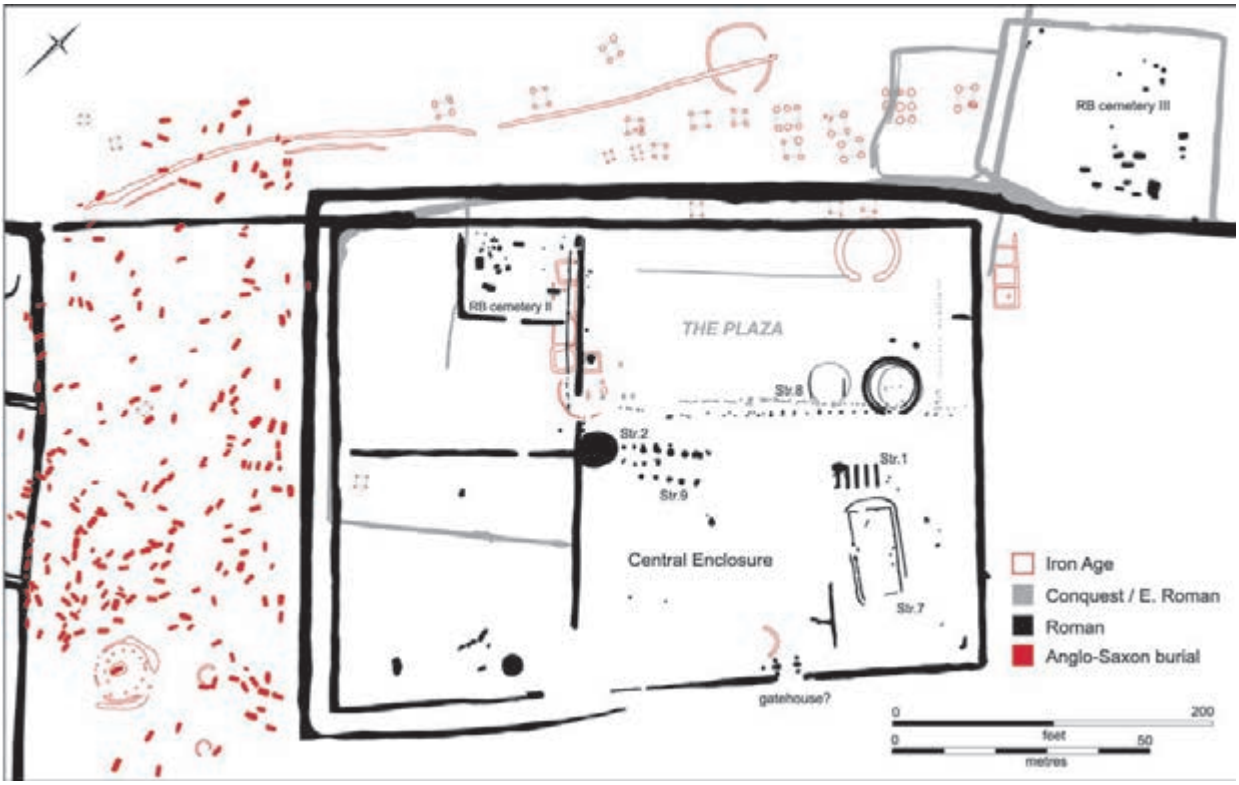


Figure 6.27. The Long-term 'hub' – The Late Iron Age Plaza > Roman Double Ditch Enclosure's 'empty ground' > Anglo-Saxon Cemetery II.

so specific that one can only suspect that a chain of historical causality lay behind them.

This admission of what, in effect, is essentially inexplicable is significant, especially in the light of archaeology's recent claims to 'landscape narratives'. It is only when there is a basis of quasi-historical causality that anything like a narrative structure is truly possible (see Evans 2013). On their own, landscape sequences can provide chronology and explanation – which itself is a great deal – but not the motivation of 'happenstance', whose causes are likely to often originate well beyond any site-area frame, no matter how large (see e.g. Moreland 2001 and Hills 2007 on archaeology and text/history).

This overview tells of multiple landscape strands and modes of interpretation: continuity/base-line production, complementary resource exploitation and, finally, social power. It is striking just how rare obvious expressions of the latter are: dig in excess of 110 roundhouses and find only two or three that clearly tell of distinct function and/or elevated status. Just as amid, for example, the plethora of near-uniform Iron Age sites currently excavated, perhaps one in 50 or even 100 (+), might provide such evidence as Mucking's Plaza or Stanway's burials (Crummy *et al*. 2007), and that speak of anything other than the domestic. *We constantly risk being overwhelmed by the everyday and only the c. 1 in 100 speaks directly of the actual basis of a period's social relations*. This, if nothing else, justifies what was attempted at Mucking and the virtue of its 'total approach'. It is only by digging at scale – or else with great luck – that you actually address such issues.

Finally, the acknowledgement that quasi-historical causality could have underpinned the site's later phases indicates the degree to which archaeological interpretation has begun to turn full-circle since the days of Mucking's excavation. During the 1970s to mid 1990s Britain's prehistory came to be dominated by arguments of *de facto* stability/settlement continuity and strictly indigenous development. This occurred in opposition to earlier historicist modes of explanation as best exemplified by Hawkes' approaches, with Clark's 1966 anti-invasionist paper marking its turning point (see also e.g. Hodson 1964). During the last decade or so, however, as the scientific analysis of human bone has begun to distinguish non-local population elements (e.g. the Amesbury archer; Fitzpatrick 2011) and concerted dating programmes allowed for the recognition of mass event-like horizons (e.g. the impact/arrival of Neolithic causewayed enclosures; Whittle *et al*. 2011), it has become possible once more to admit dynamic avenues of interpretation. Mucking's extended post-excavation, therefore, charts broader changes in archaeology generally and, along with Glastonbury

and only a handful of other sites (see e.g. Barrett 1987), now serves as a case-study of interpretative shift. Regardless of whether this is seen as marking greater disciplinary maturity or just continual paradigm oscillation, it highlights that *interpretation is not a matter of absolutism*.

Project Framing (III) – *Thinking Archives*

It is as part of the 'official' post-excavation process that a site's archives become something closed and intended to stand for eternity, so that their results can be subject to re-scrutiny. They are a key component in the rhetoric of excavation/destruction, with the archive somehow directly compensating for the loss of in-ground context (see e.g. Lucas 2001b). Indeed, if somehow held in a pristine state (i.e. not overwritten 'palimpsests'), they become – like time capsules – 'messages'/projections for an undefined future:

> The site records and assemblages, when combined with the registers, photographs, drawings and diaries, will constitute the primary site archive. This is the key archive for the site, and is the raw data upon which all subsequent assessment and analysis and future interpretation will be based. *The archive can therefore not be compromised, nor altered* – it remains the original record of what was excavated or recorded, and how. The archive should be quantified, ordered, indexed and made internally consistent (English Heritage 2008, 13 & 34; emphasis added).

The attention now paid to archives amounts to a tacit admission that we will not get the site right, but only produce 'stories' for our time. Assuming increased importance with the advent of reflexive approaches (e.g. Andrews *et al*. 2000), the abiding concern now given to them is, in some respects, comparable to the fixation with *proof* of the nineteenth and early twentieth centuries (Evans 2007). We inherently crave an absolutism in the archaeological process – be it either in the published report or the archive – and that somewhere, in the face of all our efforts, now as 'paper' (or electronic data) *the site can exist out of time*.

While the fact that these volumes can be produced at all attests to the fact that Mucking's archive has obviously 'passed the test', it lacks a sense of due *closure*. Still without central indexing and, instead, with an over-abundance of 'type' listing and 'versions', its archives have an open-ended quality: tackled in one way gets this result, try another tack and achieve still another. To this extent, abetted by the sheer scale and wealth of its sources – huge stacks of notebooks, photographs, accrued interim and scientific reports, and reams of computer print-outs – it, and by extension the site today, has something of the qualities of *collage*. Like the contents of Bloom's drawer cited in Eco's passage in the introduction to this volume, there are all kinds of other bric-a-brac in addition: campsite shopping lists, local honey-sellers' prices, appeals to regional colleges for volunteer staff (including a request to Colchester's College of Food Technology to provide camp organisers), BBC documentary scripts (along with letters to the Ministry of Public Works requesting permission for the site to be filmed) and even a letter approaching the American magazine, *Esquire*, to see if they would run an article on the site (see also Margaret's rather bizarre 'campsite gifts' list in Clark 1993, 9, including 'deck blankets from discontinued cruise liners'). Yet, among 'the missing' is, for example, apparently Tom's tape-recorded site notes (see *Inset*, Chap. 2). In the end, the archive is effectively a *montage*: first of the era of its digging and, then, the successive decades of its post-excavation.

Approached in this manner, this allows us think of site archives in quite a different light and as something other than just a funding-dictated necessity towards 'disciplinary order' (see also Derrida's 1995, 'Archive Fever'). Perhaps it is more appropriate to think of sites and their archives as inherently partial and incomplete: contributing to a creative process aspiring to science and, for those who come after, something to 'mine' for information. It is when thought of in this way that the volume's introductory passage by Benjamin strikes a chord. Mucking's hundreds of notebooks could then, themselves, be conceived of almost as a great 'site library' (Manguel 2008).

Not for a moment are we proposing that the Joneses ever conceived what they did at Mucking in this admittedly over-intellectualised manner. Yet, as regards today's ever-growing archives, in our time these are entirely valid themes to acknowledge. It is, therefore, appropriate to think of *archives as projects* in their own right and simultaneously as a record of land/feature-sequence and, also, the fieldwork's participatory 'selves'. Indeed, tackling great and unwieldy site archives is itself like *a dialogue*; both with the once-physical site and, in the case of Mucking (or equally David Clarke's Great Wilbraham; see Evans *et al*. 2006), the dead – its prime excavator (s).

With this in mind, conversations were held concerning these themes. First with John Barrett, who stressed that with grand-scale sites like Mucking (and Heathrow) its not a matter of getting bogged down with their stratigraphic minutiae, but that they have the ability to trace the 'architecture' of changing social relations.[11] Then, with Gavin Lucas, the need for archival inclusiveness and 'materialisation' to

Figure 6.28. Sentinels – The 'fragments from antiquity' that now stand watch over Mucking's finds archive in the British Museum's Dean Hill store (see Fig. 6.30); below, plot-outline matrix of Heller's Catch 22 *(1961; left) and, right, Xanadu's stacked 'lifetime' crates from Welles'* Citizen Kane *of 1941.*

chart fully the transformation of 'site-into-record' was discussed. Restrictions of length preclude the verbatim inclusion of these discussions here, but their insights inform the text.

With sites we dig/labour and, then, write ourselves 'into time'. Effectively it amounts to reclaiming 'ground' or land-use sequences, and that is surely a worthy aim. Let us not, though, think for a moment that our archives can ever somehow exist 'out of time'. Like their projects, they are invariably *rooted* – artefacts of the conceptual framework and methodologies of their time – and, thereafter, are bound to be subject to wear and loss (i.e. re-shuffling/-ordering) and, potentially, illegibility amid changing technological storage-formats (the provision of an old fiche-reader proving, after all, essential for us to tackle Mucking). Reminiscent of the classical sculptural pieces that currently stand like sentinels over Mucking's archive (see below; Figs. 6.28 & 6.30), over time they are all bound to become 'fragments from antiquity'.

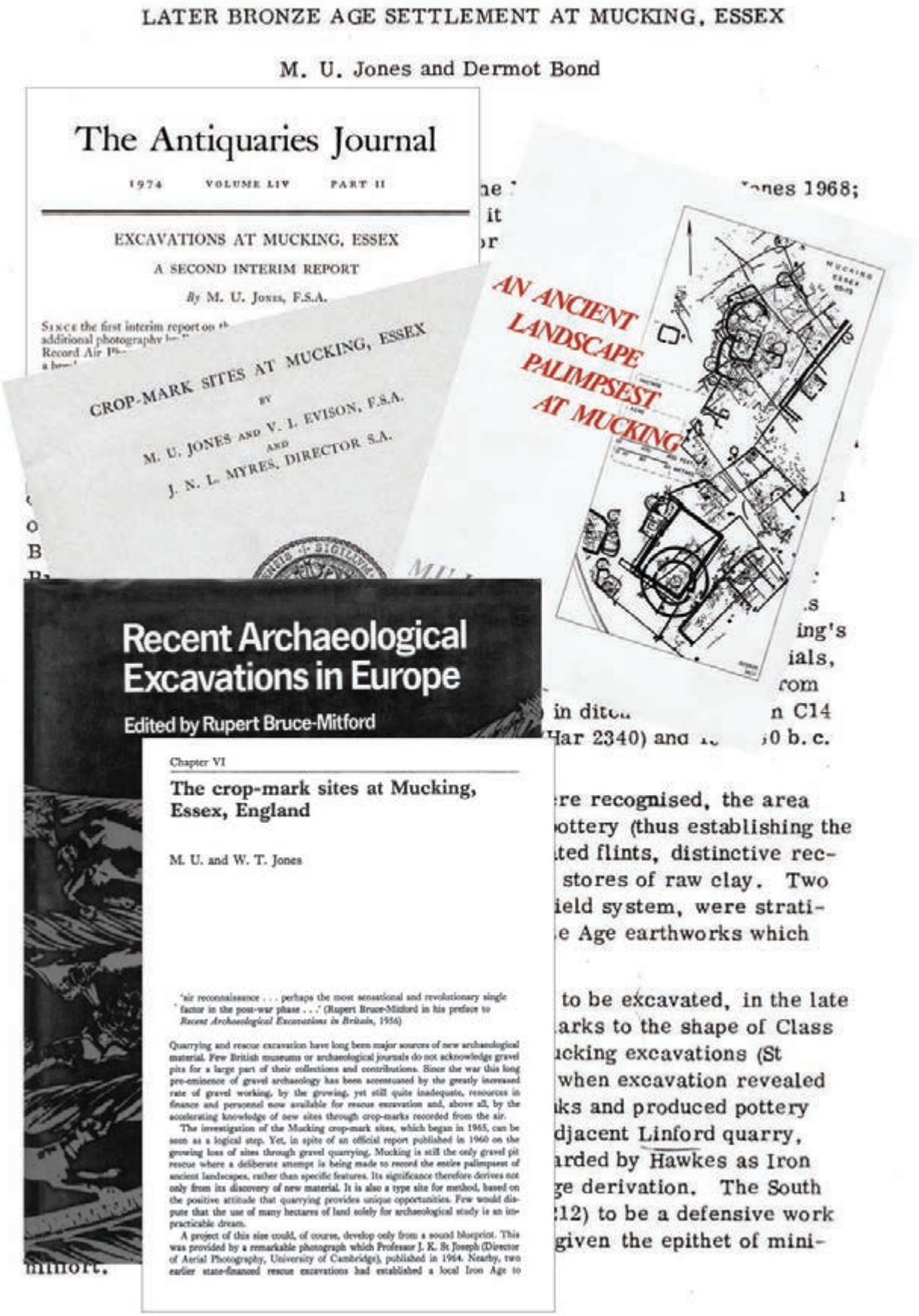

LATER BRONZE AGE SETTLEMENT AT MUCKING, ESSEX
M. U. Jones and Dermot Bond
The Antiquaries Journal
1974 VOLUME LIV PART II
EXCAVATIONS AT MUCKING, ESSEX
A SECOND INTERIM REPORT
By M. U. Jones, F.S.A.
CROP-MARK SITES AT MUCKING, ESSEX
BY
M. U. JONES AND V. I. EVISON, F.S.A.
AND
J. N. L. MYRES, DIRECTOR S.A.
AN ANCIENT LANDSCAPE PALIMPSEST AT MUCKING
Recent Archaeological Excavations in Europe
Edited by Rupert Bruce-Mitford
Chapter VI
The crop-mark sites at Mucking, Essex, England
M. U. and W. T. Jones
'air reconnaissance . . . perhaps the most sensational and revolutionary single factor in the post-war phase . . .' (Rupert Bruce-Mitford in his preface to Recent Archaeological Excavations in Britain, 1956)
Quarrying and rescue excavation have long been major sources of new archaeological material. Few British museums or archaeological journals do not acknowledge gravel pits for a large part of their collections and contributions. Since the war this long pre-eminence of gravel archaeology has been accentuated by the greatly increased rate of gravel working, by the growing, yet still quite inadequate, resources in finance and personnel now available for rescue excavation and, above all, by the accelerating knowledge of new sites through crop-marks recorded from the air.
The investigation of the Mucking crop-mark sites, which began in 1965, can be seen as a logical step. Yet, in spite of an official report published in 1960 on the growing loss of sites through gravel quarrying, Mucking is still the only gravel pit rescue where a deliberate attempt is being made to record the entire palimpsest of ancient landscapes, rather than specific features. Its significance therefore derives not only from its discovery of new material. It is also a type site for method, based on the positive attitude that quarrying provides unique opportunities. Few would dispute that the use of many hectares of land solely for archaeological study is an impracticable dream.
A project of this size could, of course, develop only from a sound blueprint. This was provided by a remarkable photograph which Professor J. K. St Joseph (Director of Aerial Photography, University of Cambridge), published in 1964. Nearby, two earlier state-financed rescue excavations had established a local Iron Age to
re recognised, the area
ottery (thus establishing the
ted flints, distinctive rec-
stores of raw clay. Two
ield system, were strati-
e Age earthworks which
to be excavated, in the late
arks to the shape of Class
icking excavations (St
when excavation revealed
ks and produced pottery
djacent Linford quarry,
arded by Hawkes as Iron
ge derivation. The South
12) to be a defensive work
given the epithet of mini-

Figure 6.29. Publication Legacy – Selection of Mucking's interim publications (left) and, right, final volume covers set upon Roger Massey-Ryan's 2004 reconstruction painting, 'Roman Villa at Mucking' (Essex County Council); superimposed upper right, Margaret Jones, 1916–2001 (photograph provided by S. Elsdon).

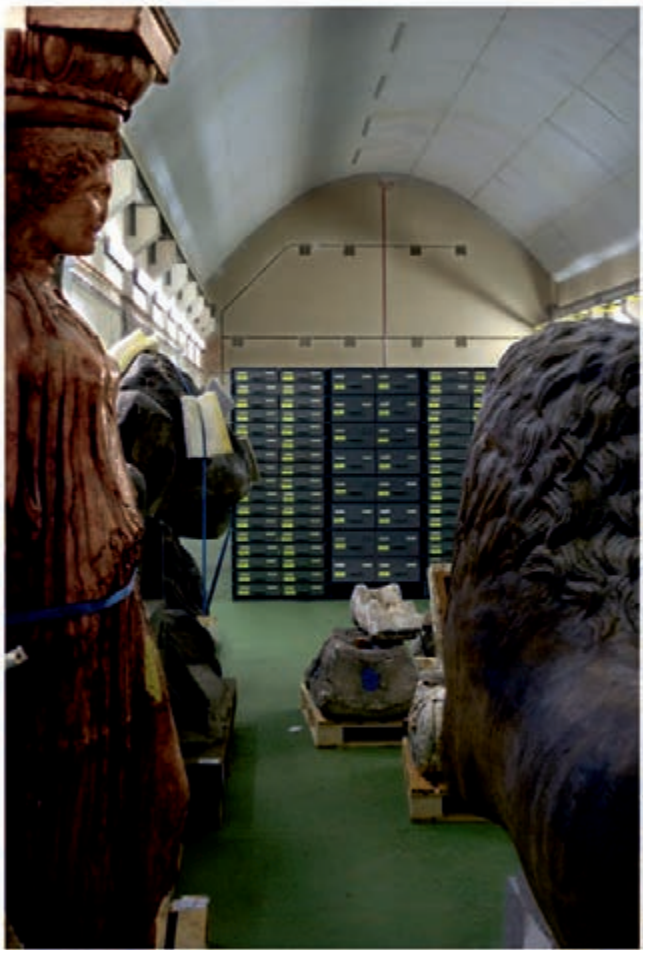


Figure 6.30. Mucking Today (I): In late 2009, Mucking, in effect, went 'under the mountain', its finds going into the British Museum's Dean Hill store in Hampshire. There, rather absurdly, they are lodged amid plaster casts in what were naval ordnance storage tunnels linked via a railway siding; the paper archive remains in the museum's Blythe Road out-station.

Hindsights – *Marking Time*

The gallery of the project's volumes (Fig. 6.29) not only attests to the weight of its amassed publication, but also emphasises the split these last two volumes represent within its series. Mucking's Anglo-Saxon volume covers featured reconstruction illustrations. This is a tradition we could have continued, perhaps with the South Rings shown on this (though, like the 1993 Anglo-Saxon settlement book, we might have had to deploy snow to mask limitations of knowledge) and with the Roman volume drawing on the pastoral rendering of the Double Ditch Enclosure found on Essex County Council's web-site. However appealing such images may seem, their implied 'naturalisation' of the archaeology was something we wanted to avoid. Instead, it is the site plan that has been used, as that – *the record* and the conditions of its generation – stands between us and 'the-past-as-lived'. Singularly in the case of Mucking, but arguably also relevant as a general principle (see Evans *et al*. 2009, 243–4), too much fieldwork-context intervenes and constantly qualifies such overly comfortable reconstruction imagery.

Leaving aside the plethora of 'Uncertain' features shown on Figure 1.19's plan, Figure 1.18 testifies to the level of 'early' understanding of the site's broad development. Established through the on-going recording of 'feature finds' during the course of fieldwork and primary-phase post-excavation by Margaret Jones and others, the overall grasp of its sequence was high. Yes, details were missed – such as the number of Anglo-Saxon post-built 'halls' or the appreciation of the Iron Age square barrows for what they were – but the basic framework was, nevertheless, there.

In this capacity, the MPX phase-plans stand (Fig. 1.18), in effect, as a demonstration of what Margaret Jones remarked was the goal of pre-Frere Report site reportage: *the selected illustration of a sequence*. Certainly, it seems extraordinary (and inexcusable), given the level of 1980s understanding, that it should have taken more than 30 years to get the

Figure 6.31. Looking Back: left, June 1972 aerial photograph, with North Ring in foreground (A; notice periglacial 'patterned ground' within its interior) and, behind, the North and Double Ditch Enclosures (B & C); notice, though, what looks to be yet another cropmark enclosure in the intervening mid-field (i.e. north of the main site-area: D; National Monuments Record copyright); right, WWII Luftwaffe vertical image with site-area indicated and with the white-rectangular outline of the Bata shoe factory visible at bottom left (est. 1932; closed 2005) and, lower right-centre, the 'Xs' of anti-glider trenches (note that close scrutiny of this photograph shows the cropmark register of both the North Ring and the North Enclosure).

site published. Its failure hinges upon two factors. First, the impact of the Frere Report in 1975 and its emphasis on the complete archive and, second, without detailed stratigraphic analysis and necessary specialist finds reportage, the absence of acceptable proof. Considered in this light, Mucking's sequence becomes a matter of *understanding beyond/without proof*.

Working through its prehistoric phases – tackling the respective text- and source-files – the implications were driven ever further home. Yes, one could curse the lack of resolution of what might be real Beaker-attributed features or the failure to tease out in the field just how many Late Bronze Age roundhouses there might have been, but upon reaching the Iron Age these 'absences' are of a completely different order. Lacking anything like full finds compilation and analyses, and essentially reliant on partial 'type-feature-only' spot-dating, our comprehension of that horizon amounts to little more than a sketch. While

having the advantage of now being able to deploy somewhat more certain site-comparative analyses based on subsequent excavations (e.g. distributional plotting of established roundhouse 'types'), in effect, we are still caught in the same realm of visual metaphor: *sketching* as a variant upon *'illustrating' the sequence*. Indeed, our presentation of its Iron Age is, perhaps, not markedly advanced on what could have been achieved from a report written before the 1980s.

Certainly, all this leaves us with strong recognition of just how much more could have been made of its archaeology, had all the requisite analyses been conducted: the nuancing of the Belgic Banjo or The Plaza/Double Ditch Enclosure development being obvious candidates. Despite this and a paucity of proof, *basic understanding* has its place and value, and at least now there is a basis to appreciate Mucking's long-term. The 'missing' – by which is meant those data-sets that still require study – has now been highlighted and there is a far sounder basis on which to base any future research related to Mucking. For its prehistory there can be no doubt that the completion of the site's Late Bronze and Iron Age pottery analyses would have to be the priority. Also crucial would be the provision of further radiocarbon dates. These could be obtained both from pottery residues and by sorting of relevant soil samples for any surviving charred cereal remains; it is, perhaps, the greatest shortcoming of the current programme that the finances did not permit this.

Having reached the end of the book and, with it, Mucking's sequence, hopefully we have granted its archive a measure of justice. We do not, though, for a moment imagine that the Joneses would have been satisfied with it; the site's prehistory, by necessity, having been dealt with in too scanty a manner for all the years of digging, and its style is probably too 'knowing'. In the end, of course, these are not, and cannot be, *their books*. We can no longer see archaeology as they would have done – with so little excavation precedent – during the 1980s, let alone the 1960s, and, therefore, these volumes must be differently informed and structured. It has been, however, our intention that, set against the site's sequence and the event of excavation itself, they have a quality of 'two narratives'. The one being our attempt to come to terms with its archival sources and, the other, a sense of the day's context and how/why the Joneses interpreted as they did.

What has been achieved in these volumes certainly falls short of any kind of total picture. This further begs the wider question of whether 'Total Archaeology' is ever possible. Within both our archives and publications, something invariably will escape our methodologies and interpretative frameworks, no matter how sophisticated and thorough they may seem in their time (see Evans & Hodder 2006b, 477). In the instance of Mucking it has been demonstrated that, while all finds were collected and all features dug/recorded, its field records were organised and its MPX post-excavation was approached with quite a distinct perspective as to what constituted a 'total' site record. It was primarily based on readily intelligible/identifiable major 'features' – kilns, *Grubenhäuser*, wells, roundhouses, *etc*. – in effect, the basic building blocks of sequence, as opposed to the 'mass' of a site's features (e.g. postholes and minor pits). In a comparable manner, the key goal of its planned publication was to focus upon those finds that readily 'spoke' of its sequence – metalwork small finds and feature sherds, *etc*. – and was not overly concerned with the gross artefact categories. While 'more' was always intended, for the reasons fully outlined in Chapter One, the end result was a selective 'total archaeology'. It was one that was not dependent upon central indexing systems and, despite two attempts to regularise its archives to 'modern standard', accessing them remains unwieldy and partial. Largely relating to the distinction of the scale of Mucking's later Bronze/Iron Age occupation, the abiding issue in this regard – and one that we have not and cannot adequately address – is the articulation of its plethora of 'small features'. Reflecting on issues of population/settlement density (and continuity), this remains all the more unfortunate and pressing as Mucking's landscape still remains distinct by its sheer feature density (and amassed dead) when compared to other subsequent 'landscape-scale' projects.

Finally, in hindsight, it can even be questioned whether the two attempts to upgrade Mucking's archive were actually warranted and if, instead, the site should have simply been published as just a 'sequence illustrative-based' exercise (i.e. pre-Frere Report-style) and one integral to the time of its fieldwork production. The Joneses probably got in the range of 80–90% of the sequence 'right', and this begs the question of whether the remainder – to whatever fraction has now been resolved – was worth the wait. The entire issue of whether investigation results can, in fact, be updated – as opposed to being intrinsically rooted in their time – reflects upon broader issues relating to the nature of the record and archives (see e.g. Barrett 1987). But then, of course, without its Frere Report-promoted MPX-phase computerisation, much of what has been distinguished here through the site's distributional plots would not now have otherwise been found.

None of us involved in the current programme ever worked at Mucking. Evans, though, remembers in the early years of his digging during the mid 1970s that members of that project's over-wintering 'hard-core' would venture on the summer circuit to sites like Chalton Down where he worked. To a man, they seemed outrageous characters

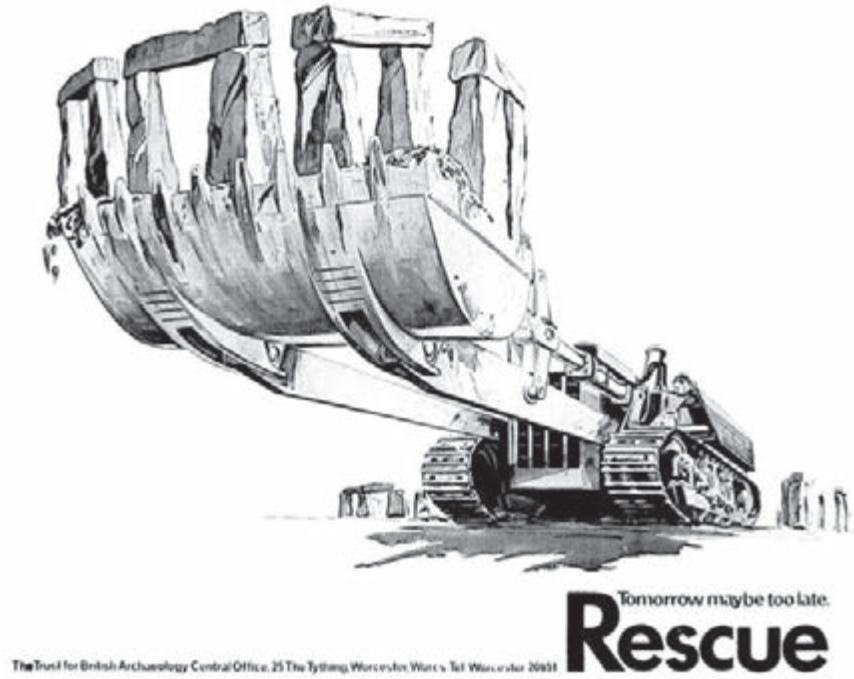


Figure 6.32. Mucking Today (II): top, Kris Allan's photograph, 'A Sea of Rubbish', showing Mucking's on-going landfill; below, RESCUE's '70s logo (from Lucas 2001a).

and frightening in their various addictions. Digging the North Ring for the Central Unit, Dermot Bond (who he later knew from Fengate) had the requisite qualities of those 'pirate crews', but it never seemed enough to make Mucking a sufficiently attractive prospect …

Now, more than three decades on, archaeology is all much changed; it is a far more genteel and professional world, but where has this left Mucking? Relentlessly each day barges haul London's refuse out to Mucking's great landfill site, gulls swoop down on the capital's detritus, and there is nothing left of the site itself in the landscape. With its finds now entombed 'under the mountain' – or at least a Hampshire Down – and in deep museum-store within former Navy arsenal-tunnels at Dean Hill (with the paper archive still held in Blythe Road), it is a difficult legacy to weigh up. While having an air of absurdity, there remains the Joneses' singular achievement of rescuing a patch of land and making it 'speak'. There is a poignancy here, between the documenting of so many lives lived out on Mucking's terrace and the fact that the fresh-faced youths of Chapter One's dig-team photos are all now themselves either old or dead.

Unlike, for example, Stonehenge, Star Carr or Sutton Hoo, Mucking never amounted to a flagship, despite its renown. Probably due to its lack of a readily identifiable institutional sponsor, being without a singular site or monumental focus and not seeing the application of a distinct suite of techniques – let alone the maverick personalities of its directors – it always had something of an 'outsider' status. While perhaps characteristic of the more chaotic qualities of rescue excavations generally (as opposed to more directed research campaigns), Mucking's appraisal was certainly not abetted by its greatly delayed publication. Indeed, rather than a flagship, carrying in its immediate wake disciplinary practice and opinion, the project fell victim to the changing tides of newly formulated officialdom and paradigm-shift through its vexed aftermath.

The site, nonetheless, still casts a long shadow and exists as something more than just its archive and publications. It has a legendary status within the development of field archaeology in this country and, after talking with so many of its participants/survivors, one becomes aware of just what an imprint it has left. Whatever its systematic faults, Mucking was also simply a great excavation event *and a hub of memory. Put that many people working and living together for so long, 'things' – various misdemeanours, scars and relationships (marriages, working and personal alliances/divorces) – are bound to happen and, not dissimilar to national service, in hindsight it invariably all takes on a larger-than-life aura. For both the discipline and the individuals involved, it* marked time *and what came after. Along with Winchester, it stamped generations of archaeologists and became a premier rite of passage of fieldwork. Indeed, you cannot think of the development of either Landscape or Anglo-Saxon Archaeology in Britain without admitting Mucking, and that is unlikely to change in the near future.*

Here we have been able to tease out a few new facets of the site's sequence and details that might have earlier been missed, but, otherwise, this volume can only stand as a testament to the Joneses' achievement on that windswept Thames-side terrace. In the end, the decades of perseverance entailed in its excavation and post-excavation remains as something undeniably heroic.

Notes

1 As outlined below, while no evidence of Bronze Age salt production was forthcoming from the neighbouring Stanford Wharf Site (Biddulph *et al*. 2012) – but then little of its pre-Iron Age deposits were exposed – The Stumble investigations attested to extensive Late Bronze Age coastal utilisation (Wilkinson *et al*. 2012; see also e.g. Meddens 1996).

2 See http://www.rspb.org.uk/reserves/guide/s/southessexmarshes/about.aspx.

3 Reflecting the low recovery rates of finds in current strip-map-and-record procedures, only 7933 worked flints were recovered from the *c*. 47ha Planet Thanet, Monkton, Kent investigations (168.8 per ha; Rady 2010, 37), with just 5240 coming from the A2 Pepperhill to Cobham Road-scheme in that county (ave. 330.6 flints per ha from its *c*. 15.85ha; Allen *et al*. 2012, 48, table 2.4)

4 See Hamerow's rather more conservative estimate of the site's Anglo-Saxon population figures (1993, 90).

5 Trained as a geographer, aside from going onto to be involved with Essex's coastal archaeology (e.g. Wilkinson & Murphy 1995; and Wilkinson *et al*. 2012), Prof. Tony Wilkinson worked widely in Middle Eastern landscapes (see e.g. 2003). In point of fact, with its broad landscape/limited excavation emphasis, among the closest parallels for the Gray's programme would be Pyror's Maxey fieldwork.

6 In the case of other projects that could have been cited (e.g. North Shoebury; Wymer & Brown 1995), their publications lack adequate finds quantification by period.

7 This involves accepting that whereas Mucking generally saw a *c*. 75% excavation-sample of its main linear features (quarry circumstances preventing the aspired 100%), today this would usually only amount to 10% at best. As at Mucking, currently all building-related features would be 100% dug, as would many of its main pits; this latter figure we take to represent a further 10% of the periods' finds total (i.e. 10 + 10% = 20%).

8 See Kinnes' Chapter Two recollection above concerning the elucidation the site's 'stain' burials and also Carver 2005 for the recording of comparable 'sand bodies' at Sutton Hoo. In their groundbreaking 1984 paper, 'Analytical Excavation', Reynolds and Barber discussed excavation as, in effect, an act of 'cultural rescue' when faced with the degradation wrought by such acidic soil environments.

9 Further functional attribution of the Roman site's small finds is to be found in the CAU Roman volume. When compared, however, to such analyses of more recently excavated major Roman sites (e.g. Colne Fen's Camp Ground; see Evans *et al*. 2013b), Mucking's interpretation is severely curtailed due to its lack of metal-detecting. Surely, for example, such a complex would have had far more than just one stylus, and the same non-recovery issues also apply to the Anglo-Saxon settlement's non-grave/-*Grubenhäuser* metalwork.

10 Seemingly so like the South Rings (Fig. 3.39), it is serendipitous that the triple-circuit Fréthun monument lay at the eastern end of the Channel Tunnel (see Bostyn *et al*. 1992, fig. 6).

11 We both, moreover, agreed that what Mucking really deserved was an cover-image styled after Peter Blake's *Sergeant Pepper* cover ('it was almost 45 years ago today …') and a photo-mosaic line-up of its key participants; it has, unfortunately, proven impossible to assemble the necessary imagery.

Bibliography

Adkins, P. and N. Brown, 1984–5. Rook Hall. *Essex Archaeology and History* 16, 82–122.

Adkins, L. and S. Needham, 1985. New research on a Late Bronze Age enclosure at Queen Mary's Hospital, Carshalton. In *Surrey Archaeological Collections* 76, 11–50.

Albarella, U. 2000. *The Pig Age: people and animals at the Neolithic–Bronze Age boundary in Britain*. Paper presented at the conference Food, Identity and Culture in the Neolithic and early Bronze Age, Sheffield.

Allason-Jones, L. 2008. Brooches. In C. Haselgrove (ed.), *Cartimandua's Capital? The 1984–9 excavations and related research on the Iron Age and Early Roman royal site at Stanwick, North Yorkshire*. (Britannia Monograph.) London: Society for the Promotion of Roman Studies.

Allen, D.F. 1970. The coins of the Iceni. *Britannia* 1, 1–33.

Allen, D.F. 1971. British potin coins: a review. In D. Hill and M. Jesson (eds.), *The Iron Age and its Hillforts : papers presented to Sir Mortimer Wheeler on the occasion of his eightieth year at a conference held by the Southampton University Archaeological Society 5th–7th March, 1971*. (British Archaeological Reports International Series 1.) Southampton: Southampton University Archaeological Society for the Department of Archaeology, University of Southampton.

Allen, L. and L. Webley, 2007. Metalwork. In L. Webley, J. Timby and M. Wilson, *Fairfield Park, Stotfold, Bedfordshire: Later Prehistoric Settlement in the East Chilterns*. (Bedfordshire Archaeology Monograph 8.) Bedford: Oxford Archaeological Unit/Bedfordshire Archaeological Council, 94–95.

Allen, M.J., M. Leivers and C. Ellis, 2008. Neolithic causewayed enclosures and later prehistoric farming: duality, imposition and the role of predecessors at Kingsborough, Isle of Sheppey, Kent, UK. *Proceedings of the Prehistoric Society* 74, 235–322.

Allen, T. 2009. Prehistoric settlement patterns on the north Kent coast between Seasalter and the Wantsum. In *Archaeologia Cantiana* 129, 189–207.

Allen, T., T.C. Darvill, L.S. Green and M.U. Jones, 1993. *Excavations at Roughground Farm, Lechlade, Gloucestershire: a prehistoric and Roman Landscape*. Oxford: Oxford Archaeological Unit/Oxbow Books.

Allen, T., M. Donnelly, A. Hardy, C. Hayden and K. Powell, 2012. *A Road through the Past: Archaeological discoveries on the A2 Pepperhill to Cobham road-scheme in Kent*. Oxford: Oxford Archaeology.

Alexander, J. 1970. *The Directing of Archaeological Excavations*. London: Baker.

Alvey, B and J. Moffett, 1985. Hard copy graphic displays for archaeologists. *London Archaeologist* 5, 40–6.

Ambers, J.S., A. Bowman, Gibson and I. Kinnes, 1992. Radiocarbon results for the British Beakers. *Radiocarbon* 34, 916–27.

Andrews, G., J.C. Barrett and J.S.C. Lewis, 2000. Interpretation not record: the practice of archaeology. *Antiquity* 74, 525–30.

Andrews, P. 2009. West Thurrock: late prehistoric settlement, Roman burials and the medieval manor house, Channel Tunnel Rail Link excavations 2002. *Essex Archaeology & History* 20, 1–77.

Andrews, P., E. Biddulph, A. Hardy and R. Brown, 2011. *Settling the Ebbsfleet Valley: High Speed 1 excavations at Springhead and Northfleet, Kent: the Late Iron Age, Roman, Saxon, and medieval landscape, Volume 1: the sites*. Oxford and Salisbury: Oxford Wessex Archaeology.

Anker, K., E. Biddulph, C. Carey and S. Foreman, 2010. *Stanford Wharf Nature Reserve, London Gateway, Stanford-le-Hope, Essex: Post-excavation assessment and updated project design*. Oxford: Oxford Archaeology Report.

Armitage, E.S. 1900. Anglo-Saxon burhs and early Norman castles. *Proceedings of the Society of Antiquaries of Scotland* 34, 260–88.

Ashwin, T. and S. Bates, 2000. *Excavation on the Norwich Southern Bypass, 1989–91* (Pt. 1). (East Anglian Archaeology 91.) Norwich: Norfolk Museums Service.

Astor, M. 1979. The hedges and woods of Mucking. *Journal of Thurrock Local History Society (Panorama)* 22, 59–66.

Atkinson. A. 1995. Late Bronze Age enclosure at Broomfield, Chelmsford. *Essex Archaeology and History* 26, 1–24

Atkinson, M. and S.J. Preston, 1998. The Late Iron Age and Roman settlement at Elms Farm, Heybridge, Essex, excavations 1993–5: an interim report. *Britannia* 29, 85–110.

Bahn, P. (ed.) 1996. *The Cambridge Illustrated History of Archaeology*. Cambridge: Cambridge University Press.

Bailey, G. 2007. Time perspectives, palimpsests and the

archaeology of time. *Journal of Anthropological Archaeology* 26, 198–223.

Bakker, J.A. 1979. *The T.R.B. West Group: Studies in the chronology and geography of the makers of hunebeds and tiefstich pottery.* Amsterdam: Universitat van Amsterdam.

Bamford, H.M. 1970. *Some Beaker Sites in West Norfolk and their Affinities*. Unpublished PhD thesis, University of Edinburgh.

Bannister, K. 1961. Barrow at East Tilbury, Essex. *Thurrock Local History Society Journal* 6, 19–27.

Barclay, A. 1999. Grooved Ware from the Upper Thames Region. In R. Cleal and A. MacSween (eds.), *Grooved Ware in Britain & Ireland*. (Neolithic Studies Group Seminar Papers 3.) Oxford: Oxbow, 9–23.

Barclay, A., C.J. Stevens and S. Wyles, 2011. An Early Bronze Age field system from Monkton Road, Minster, Thanet, and an early date for the cultivation of spelt. In *PAST (Newsletter of the Prehistoric Society)* 69, 2–3.

Barford, P.M. 1988. Salt production equipment (briquetage). In D. Bond, *Excavation at the North Ring, Mucking, Essex: A Late Bronze Age Enclosure*. (East Anglian Archaeology Report 43.) Chelmsford: Essex County Council Archaeology Section, 39–41.

Barford, P.M. 1990. Appendix 2: Salt production in Essex before the Red Hills. In A.J. Fawn, K.A. Evans, I. McMaster and G.M.R. Davies (eds), *The Red Hills of Essex: salt making in antiquity*. Colchester: Colchester Archaeological Group, 81–4.

Barford, P.M. 1995. Re-interpreting Mucking: Countering the Black Legend. *Anglo-Saxon Studies in Archaeology and History* 8, 103–9.

Barford, P.M. 1996. 'Belgic bricks' and clay slabs. In J. May (ed.), *Dragonby: report on excavations at an Iron Age and Romano-British settlement in North Lincolnshire*. (Oxbow Monograph 61.) Oxford: Oxbow Books, 329.

Barford, P.M. 2011. Mucking: Real heritage heroism or heroic failure? In J. Schofield (ed.), *Great Excavations: Shaping the Archaeological Profession*. Oxford: Oxbow Books, 212–30.

Barford, P.M. and H.J. Major, 1992. Later Bronze Age loomweights from Essex. *Essex Archaeology and History* 23, 117–20.

Barker. P. 1980. *Rabies archaeologorum*: a reply. *Antiquity* 54, 19–20.

Barrett, J. 1973. Four Bronze Age cremation cemeteries from Middlesex. *Transactions of the London and Middlesex Archaeological Society* 24, 111–34.

Barrett, J. 1976. Deverel-Rimbury: problems of chronology and interpretation. In C.B. Burgess and R. Miket (eds.), *Settlement and Economy in the Third and Second Millennia BC*. (British Archaeological Reports British Series 33.) Oxford British Archaeological Reports, 289–307.

Barrett, J. 1979. Later Bronze Age Pottery in Southern Britain. *Current Archaeology* 6, 230–1.

Barrett, J. 1980. The pottery of the later Bronze Age in lowland England. *Proceedings of the Prehistoric Society* 46, 297–319.

Barrett, J. 1987. The Glastonbury Lake Village: Models and source criticism. *Archaeological Journal* 144, 409–23.

Barrett, J. and D. Bond, 1988. The Pottery. In D. Bond, *Excavations at the North Ring, Mucking, Essex.* (East Anglian Archaeology Report 43.) Chelmsford: Essex County Council Archaeology Section, 25–37.

Barrett, J. and R. Bradley (eds.) 1980. *Settlement and Society in the British Later Bronze Age*. (British Archaeological Reports British Series 83.) Oxford: BAR.

Barringer, C. (ed.) 1984. Aspects of East Anglian Prehistory (20 Years after Rainbird Clarke). Norwich: Geo Books.

Barton, K.J. 1962. Settlements of the Iron Age and Pagan Saxon periods at Linford, Essex. *Transactions of the Essex Archaeological Society* 1(2), 57–104.

Bates, P.J. and R.P. Winham, 1985. Loomweights. In P.J. Fasham (ed.), *The Prehistoric Settlement at Winnall Down, Winchester*. (Hampshire Field Club and Archaeological Society: Monograph 2.) Gloucester: Alan Sutton, 90–2.

Bates, S. 2000. Excavations at Quidney Farm, Saham Toney, Norfolk 1995. *Britannia* 31, 201–37.

Bayley, J. 1988. Analytical results for the brooches. In T.W. Potter and S. Trow, *Puckeridge-Braughing, Hertfordshire: the Ermine Street excavations 1971–2*. (Hertfordshire Archaeology 10.) Hertford: Hertfordshire Archaeology, 54–7.

Bayley, J. 1992. *Anglo-Scandivian Non-ferrous Metalworking from 16–22 Coppergate*. York: York Archaeological Trust.

Bayley, J. and S. Butcher, 2004. *Roman Brooches in Britain: A Technological and Typological Study based on the Richborough Collection*. (Reports of the Research Committee of the Society of Antiquaries of London 68.) London: Society of Antiquaries of London.

Beagrie, N. 1989. Excavations by Bryan and Helen O'Neil on the Isles of Scilly. In M. Bowden, D. Mackay and P. Topping (eds.), *From Cornwall to Caithness: Some Aspects of British Field Archaeology*. (British Archaeological Reports 209.) Oxford: BAR, 49–54.

Bedwin, O.R. 1992. Early Iron Age settlement at Maldon and the Maldon 'burh': excavations at Beacon Green 1987. *Essex Archaeology and History* 22, 10–24.

Benjamin, W. 1936. *The Work of Art in the Age of Mechanical Reproduction*. (J. Underwood, translated, 2008 Penguin edition). Penguin: London.

Bennett, A. (ed.), 2004. Archaeology in Essex 2002. *Essex Archaeology and Hist*ory 34 (for 2003), 229–51.

Bennett, P., P. Couldrey and N. Macpherson-Grant, 2007. *Highstead, near Chislet, Kent: Excavations 1975–77*. (The Archaeology of Canterbury, New Series Vol. IV.) Canterbury: Canterbury Archaeological Trust.

Bennett, P., P. Clark, A. Hicks, J. Rady and I. Riddler, 2008. *At the Great Crossroads: Prehistoric, Roman and medieval discoveries on the Isle of Thanet, 1994–95*. (Canterbury Archaeological Trust Occasional paper No. 4.) Canterbury: Canterbury Archaeological Trust.

Biddle, M. and V.W. Emery, 1973. *The M3 Extension: An Archaeological Survey*. Winchester: M3 Archaeological Research Committee.

Biddulph, E., S. Foreman, E. Stafford, D. Stansbie and R. Nicholson, 2012. *London Gateway: Iron Age and Roman Salt Making in the Thames Estuary: Excavation at Stanford Wharf Nature Reserve, Essex*. (Oxford Archaeology Monograph No. 18.) Oxford: Oxford Archaeology.

Biddulph, E., R. Seager Smith and J. Schuster, 2011. *Settling the Ebbsfleet Valley: High Speed 1 Excavations at Springhead and Northfleet, Kent. The Late Iron Age, Roman, Saxon and Medieval Landscape*. (Vol. II: Late Iron Age to Roman Finds Reports). Oxford and Salisbury: Oxford Wessex Archaeology.

Binford, L.R. 1968. Archaeological perspectives. In S. and L.R. Binford (eds.), *New Perspectives in Archaeology*. Chicago: Aldine Publishing Company, 1–32.

Bishop, M.C. 1998. Military equipment. In H.E.M. Cool and C. Philo (eds.), *Roman Castleford. Excavations 1974–85. Volume 1, The Small Finds*. (Yorkshire Archaeology 4.) Wakefield: West Yorkshire Archaeology Service, 61–81.

Blair, J. 2005. *The Church in Anglo-Saxon Society*. Oxford: Oxford University Press.

Bloch, M. 1998. Why trees, too, are good to think with: Towards an anthropology of the meaning of life. In L. Rival (ed.), *The Social Life of Trees: Anthropological Perspectives on Tree Symbolism*. Oxford: Berg, 39–55.

Bond, D. 1988. *Excavation at the North Ring, Mucking, Essex: A Late Bronze Age Enclosure*. (East Anglian Archaeology Report 43.) Chelmsford: Essex County Council Archaeology Section.

Boon, G.C. 2000. The other objects of copper alloy. In M. Fulford and J. Timby, *Late Iron Age and Roman Silchester: excavations on the site of the Forum-Basilica, 1977, 1980–86*. (Britannia Monograph No. 15.) London: Society for the Promotion of Roman Studies, 338–59.

Booth, P., T. Champion, S. Foreman, P. Garwood, H. Glass, J. Munby and A. Reynolds, 2011. *On Track: the Archaeology of High Speed 1 Section 1 in Kent*. Oxford: Oxford Wessex Archaeology.

Bostyn, F., G. Blancquaert and Y. Lancho, 1992. Un enclos triple du Bronze ancien à Frethun (Pas-de-Calais). *Bulletin de la Société Préhistorique Francaise* 89, 393–412.

Bourgeois, J. and M. Talon, 2009. From Picardy to Flanders: Transmanche connections in the Bronze Age. In P. Clark (ed.), *Bronze Age Connections: Cultural Contact in Prehistoric Europe*. Oxford; Oxbow Books, 38–59.

Bowden, M. 2001. Mapping the Past: O.G.S. Crawford and the development of landscape studies. *Landscapes* 2, 29–45.

Bowden, M. 2006. 'Guard Chambers': an unquestioned assumption in British Iron Age studies. *Proceedings of the Prehistoric Society* 72, 423–36.

Bowman, S.G.E., J.C. Ambers and M.N. Leese, 1990. Re-evaluation of British Museum radiocarbon dates issued between 1980 and 1984. *Radiocarbon* 32, 59–79.

Bradbury, A.P. 2001. Modern or prehistoric: experiments in distinguishing between culturally and mechanically produced chipped stone artifacts. *North American Archaeologist* 22/3, 231–58.

Bradley, R. 1978. *The Prehistoric Settlement of Britain*. London: Routledge.

Bradley, R. 1992. Archaeology and the river gravels form the Neolithic to the early Iron Age. In M. Fulford (ed.), *The Archaeology of the River Gravels*. London: Society of Antiquaries, 15–22.

Bradley, R. 1997. 'To see is to have seen': Craft traditions in British field archaeology. In B.L. Molyneaux (ed.), *The Cultural Life of Images: Visual representation in Archaeology*. London: Routledge, 62–72.

Bradley, R. 2005. *Ritual and Domestic Life in Prehistoric Europe*. London: Routledge.

Bradley, R. 2007. *The Prehistory of Britain and Ireland*. Cambridge: Cambridge University Press.

Bradley, R. 2012. *The Idea of Order: The Circular Archetype in Prehistoric Europe*. Oxford: Oxford University Press.

Bradley, R. 2013. Houses of commons, houses of lords: domestic dwellings and monumental architecture in prehistoric Europe. *Proceedings of the Prehistoric Society*, 79, 1–17.

Bradley, R., P. Chowne, R.M.J. Cleal, F. Healy and I. Kinnes, 1993. *Excavations on Redgate Hill, Hunstanton, Norfolk, and at Tattershall Thorpe, Lincolnshire*. (East Anglian Archaeology 57.) Dereham: Field Archaeology Division, Norfolk Museums Service; Sleaford and Heritage Trust of Lincolnshire.

Bradley, R., C. Haselgrove, M. Vander Linden and L. Webley, forthcoming. *The Prehistory of Northwest Europe*. Oxford: Oxford University Press.

Bridgland, D.R., 1994. *Quaternary of the Thames*. London: Chapman and Hall.

Brinch Madsen, H. 1981 Tuyères. In A. Lundström and H. Clarke (eds.), *Excavations at Helgö VII. Glass – Iron – Clay*. Stockholm: Kunliga Vitterhets, 95–106.

Brinson, J.G.S. 1943. Two burial groups of Belgic age, Hothfield Common, Ashford. *Archaeologia Cantiana* 56, 41–7.

Brown, M.A. and E. Blin-Stoyle, 1959. A aample analysis of British Middle and Late Bronze Age material, using optical spectrometry. *Proceedings of the Prehistoric Society* 25, 188–208.

Brown, N. 1983. Prittlewell. In D. Priddy (ed.). Work of the Essex County Council Archaeology Section 1982. *Essex Archaeology and History* 15, 119–55.

Brown, N. 1984–5a. Harlow. In D. Priddy, Work of the Essex County Council Archaeology Section 1983–4, Excavations in Essex, 1983–4. *Essex Archaeology and History* 16, 82–122.

Brown, N. 1984–5b. North Shoebury. In D. Priddy, Work of the Essex County Council Archaeology Section 1983–4, Excavations in Essex, 1983–4. *Essex Archaeology and History* 16, 82–122.

Brown, N. 1987a. Late Bronze Age Pottery. In D. Buckley and J. Hedges, *The Bronze Age and Saxon Settlements at Springfield Lyons: A Interim Report*. (Essex County Council Archaeology Section Occasional Paper 5.) Chelmsford: Essex County Council Archaeology Section, 8–11.

Brown, N. 1987b. Prehistoric Pottery. *Essex Archaeology and History* 18, 16–33.

Brown, N. 1988a. A Late Bronze Age settlement on the boulder clay plateau: excavations at Broads Green 1986. *Essex Archaeology and History* 19, 1–14.

Brown, N. 1988b. A Late Bronze Age enclosure at Lofts Farm, Essex. *Proceedings of the Prehistoric Society* 54, 249–302.

Brown, N. 1991a. Middle Iron Age Decorated Pottery around the Thames Estuary. *Essex Archaeology and History* 22, 165–6.

Brown, N. 1991b. Prehistoric pottery. In O. Bedwin, Asheldham Camp – an early Iron Age hill fort: the 1985 excavations. *Essex Archaeology and History* 22, 13–37.

Brown, N. 1991c. An Early Iron Age jar from North Shoebury. *Essex Archaeology and History* 22, 164–5.

Brown, N. 1992. Early Iron Age settlement at Maldon and the Maldon 'burh': excavation at Beacon Green 1987. *Essex Archaeology and History* 23, 10–24.

Brown, N. 1994. The prehistoric pottery. In N. Brown and N. Lavender, Later Bronze Age settlement at Great Baddow and settlement in the Chelmer Valley, Essex, 1500–500 BC. *Essex Archaeology and History* 25, 6–8.

Brown, N. 1995. Later Bronze Age and Early to Middle Iron Age pottery. In J.J. Wymer and N. Brown, *Excavations at North Shoebury: settlement and economy in south-east Essex 1500 BC–AD 1500*. East Anglian Archaeology Report 75, 77–88.

Brown, N. 1996. The Archaeology of Essex, *c.* 1500–500 BC. In O. Bedwin (ed.), *The Archaeology of Essex: Proceedings of the 1993 Writtle Conference*. Chelmsford: Essex County Council Planning Department, 26–37.

Brown, N. 1998. Earlier Iron Age pottery. In G.A. Carter, *Excavations at the Orsett 'Cock' Enclosure, Essex, 1976*. (East Anglian Archaeology Report 86.) Chelmsford: Archaeology Section Essex County Council, 88–9.

Brown, N. 1999. *The Archaeology of Ardleigh, Essex; Excavations 1955–1980.* (East Anglian Archaeology 90.) Chelmsford: Essex County Council: Heritage Conservation Essex County Council, 26–37.

Brown, N. 2001. The Late Bronze Age enclosure at Springfield Lyons in its landscape context. *Essex Archaeology and History* 32, 92–101.

Brown, N. 2004. Late Bronze Age, Early and Middle Iron Age pottery. In R. Havis and H. Brooks, *Excavations at Stansted Airport, 1986–91. Volume 1: Prehistoric and Romano-British.* (East Anglian Archaeology Report 107.) Chelmsford: Heritage Conservation, Essex County Council, 39–54.

Brown, N. 2006. *A Medieval Moated Manor by the Thames Estuary: Excavations at Southchurch Hall, Southend, Essex.* (East Anglian Archaeology 115.) Chelmsford: Historic Environment, Essex County Council.

Brown, N. 2013. Late Bronze Age Pottery. In N. Brown and M. Medlycott, *The Neolithic and Late Bronze Age Enclosures at Springfield Lyons, Essex.* (East Anglian Archaeology Report 149.) Chelmsford: Essex County Council, 92–122.

Brown, N. and P. Adkins, 1988. Heybridge, Blackwater Sailing Club. In D. Priddy (ed.), The Work of the Essex County Council Archaeology Section, 1987. *Essex Archaeological & History* 19, 240–59.

Brown, N. and M. Germany, 2002. Jousting at Windmills: The Essex Cropmark Enclosure project. *Essex Archaeology and History* 33, 8–53.

Brown, N. and N.J. Lavender, 1994. Later Bronze Age sites at Great Baddow and settlement in the Chelmer valley, Essex, 1500 to 500 BC. *Essex Archaeology & History* 25, 3–13.

Brown N. and M. Medlycott, 2013. *The Neolithic and Late Bronze Age Enclosures at Springfield Lyons, Essex*: *Excavations 1981–91.* (East Anglian Archaeology Report 149.) Chelmsford: Essex County Council.

Brown, R.A. 1986. The Iron Age and Romano-British settlement at Woodcock Hall, Saham Toney, Norfolk. *Britannia* 17, 1–58.

Brück, J. 1999. Houses, lifecycles and deposition on Middle Bronze Age settlements in southern Britain. *Proceedings of the Prehistoric Society* 65, 145–66.

Brück, J. 2006. Fragmentation, personhood and the social construction of technology in Middle and Late Bronze Age Britain. *Cambridge Archaeological Journal* 16, 297–315.

Brudenell, M. 2007. The later prehistoric pottery. In A. Cooper and M. Edmonds, *Past and Present. Excavations at Broom, Bedfordshire 1996–2007*. Oxford. Cambridge Archaeological Unit.

Brudenell, M. and A. Cooper, 2008. Post-Middenism: Depositional histories on later Bronze Age settlement at Broom, Bedfordshire. *Oxford Journal of Archaeology* 27, 15–36.

Bryant, S.R. and B.R.K. Niblett, 1997. The late Iron Age in Hertfordshire and the north Chilterns. In A. Gwilt and C. Haselgrove (eds), *Reconstructing Iron Age Societies*. (Oxbow Monograph 71.) Oxford: Oxbow, 270–81.

Buckley, D.G. 1979. The Stone. In G.J. Wainwright, *Gussage All Saints: An Iron Age Settlement in Dorset.* (Department of the Environment Archaeology Report No. 10.) London: HMSO.

Buckley, D.G. (ed.) 1980. *Archaeology in Essex to AD 1500*. (Council for British Archaeology Research Report No. 34) London: Council for British Archaeology.

Buckley, D.G. and J.D. Hedges, 1987. *The Bronze Age and Saxon Settlement of Springfield Lyons, Essex: An interim report*. (Essex County Council Archaeological Section Occasional paper 5.) Chelmsford: Essex County Council Archaeological Section.

Buckley, D.G., J.D. Hedges, N. Brown, E. Healey, L. Hurcombe, M. Kelly, H. Major, B. Milton, P. Murphy, T.P. O'Connor and T.J. Wilkinson, 2001. Excavations at a Neolithic cursus, Springfield, Essex, 1979–85. *Proceedings of the Prehistoric Society*, 67, 101–62.

Burgess, C. and R. Miket (eds.), 1976. *Settlement and Economy in the Third and Second Millennia B.C.* (British Archaeological Reports British Series 33.) Oxford: BAR.

Burningham, H. and J.R. French, 2009. *Morphological History of the Outer Thames Seabed.* Paper presented at the Estuaries and Coastal Science Association symposium: The Thames, Coasts and Estuaries of South-East England, London South Bank University, 22–24th April 2009.

Butcher, S. and P. Garwood, 1994. *Rescue Excavation 1938 to 1972. A Report for the Backlog Working Party of the Ancient Monuments Advisory Committee of English Heritage*. London: English Heritage.

Carney T. 2002. Memories of Mucking. In *Thurrock Gold*. Thurrock: Thurrock Local History Society.

Carr, G. 2007. Excarnation to cremation: continuity or change? In C. Haselgrove and T. Moore (eds), *The Later Iron Age in Britain and Beyond*. Oxford: Oxbow, 444–53.

Carter, G.A. 1998. *Excavations at the Orsett 'Cock' Enclosure, Essex, 1976*. (East Anglian Archaeology Report 86.) Chelmsford: Essex County Council Archaeology Section.

Carver, M. 2005. *Sutton Hoo: A seventh-century princely burial ground and its context*. (Reports of the Research Committee of the Society of Antiquaries of London 69.) London: British Museum Press.

Catton J.P.K, M.U. Jones and J.C. Moffett, 1981. The 1965–1978 Mucking Excavation Computer Database. In I. Graham and E. Webb (eds.), *Computer Applications in Archaeology* 1981, 36–43.

Chadburn, A and J. Gardiner, 1985. A Grooved Ware pit and prehistoric spademarks on Hengistbury Head (Site 6), Dorset, 1984. In *Proceedings of the Prehistoric Society* 51, 315–18.

Champion, S. 1998. Women in British archaeology: visible and invisible. In M Diaz-Andreu and M.L. Sørensen (eds.), *Excavating Women: History of Women in European Archaeology*. London: Taylor & Francis, 175–97.

Champion, T.C. 1978. Strategies for sampling a Saxon settlement: a retrospective view of Chalton. In J.F. Cherry, C. Gamble, and S. Shennan (eds.), *Sampling in Contemporary British Archaeology*. (British Archaeological Reports British Series 50.) Oxford: BAR, 207–25.

Champion, T.C. 1980. Settlement and environment in later Bronze Age Kent. In J. Barrett and R. Bradley (eds), *Settlement and Society in the British Later Bronze Age*. (British Archaeological Reports British Series 83.) Oxford: BAR, 223–46.

Champion, T.C. 2004. Exotic materials in the Early Bronze Age of Southeastern England. In H. Roche, E. Grogan, J. Bradley, J. Coles and B. Raftery (eds), *From Megaliths to Metals: essays in honour of George Eogan*. Oxford: Oxbow, 48–52.

Champion, T.C. 2007a. Settlement in Kent from 1500 to 300 BC. In C.C. Haselgrove and R.E. Pope (eds.), *The Earlier Iron Age in Britain and the near Continent*. Oxford: Oxbow Books, 292–305.

Champion, T.C. 2007b. The growth of archaeology in Kent. In J.H. Williams (ed.), *The Archaeology of Kent to AD 800*. Woodbridge: Boydell and Kent County Council, 7–22.

Champion, T.C. 2007c. Prehistoric Kent. In J.H Williams (ed.), *The Archaeology of Kent to AD 800*. Woodbridge: Boydell Press and Kent County Council, 67–132.

Cheney, H.J. 1935. A Neolithic occupation site at Playden near Rye. *Antiquaries Journal* 15, 152–64.

Cherry, J.F., C. Gamble, and S. Shennan (eds.), 1978. *Sampling in Contemporary British Archaeology*. (British Archaeological Reports British Series 50.) Oxford: BAR.

Clark, A. 1993. *Excavations at Mucking, Volume 1: The Site Atlas*. (English Heritage Archaeological Report 20.) London: British Museum.

Clark, J.G.D. 1934 Derivative forms of the the petit tranchet in Britain. *Archaeological Journal* 91, 34–58.

Clark, J.G.D. 1966. The Invasion Hypothesis in British Archaeology. *Antiquity* 40, 172–89.

Clark, J.G.D. and C.I. Fell, 1953. The Early Iron Age site at Micklemoor Hill, West Harling, Norfolk, and its pottery. *Proceedings of the Prehistoric Society* 24, 1–40.

Clark, J.G.D., E.S. Higgs and I.H. Longworth, 1960. Excavations at the Neolithic site at Hurst Fen, Mildenhall, Suffolk, 1954, 1957 and 1958. *Proceedings of the Prehistoric Society* 26, 202–45.

Clark, N. 2005. Elizabeth Elstob (1674–1752): England's first professional woman historian? *Gender and History* 17(1), 210–20.

Clarke, D.L. 1970. *The Beaker Pottery of Great Britain and Ireland*. Cambridge: Cambridge University Press.

Clarke, D.L. (ed.), 1972. *Models in Archaeology*. London: Methuen

Clay, P. 2002. *The Prehistory of the East Midlands Claylands: aspects of settlement and land-use from the Mesolithic to the Iron Age in central England*. Leicester: University of Leicester Archaeological Services.

Cleal, R. 1982. A re-analysis of the ring-ditch site at Playden, East Sussex. *Sussex Archaeological Collection* 120, 1–17.

Cleal, R. 1984. The Later Neolithic in Eastern England. In R. Bradley and J. Gardiner (eds.), *Neolithic Studies. A Review of Some Current Research.* (British Archaeological Reports British Series 133.) Oxford: BAR, 135–58.

Close-Brooks, J. 1993. Disscusion of the site. In W.F. Grimes and J. Close-Brooks, The excavation of Caesar's Camp, Heathrow, Harmondsworth, Middlesex, 1944. *Proceedings of the Prehistoric Society* 59, 330–8.

Collis, J. 1977. Iron Age Henges? *Archaeologia Altantica* 2, 55–63.

Collis, J. 2010. Excavations in Winchester 1961–72. In. J. Schofield (ed.), *Great Excavations: Shaping the Archaeological Profession*. Oxford: Oxbow Books.

Colquhoun, I. and C.B. Burgess, 1988. *The Swords of Britain*. (Prahistorische Bronzefunde IV, 5.). Munich: C.H. Beck.

Conneller, C. 2006. The Roman flintworking. In D. Garrow, S. Lucy and D. Gibson, *Excavations at Kilverstone, Norfolk: An episodic landscape history*. (East Anglian Archaeology Report 113.) Cambridge: Cambridge Archaeological Unit, 129–30.

Cook, A.M. and M.W. Dacre, 1*985. Excavations at Portway, Andover 1973–1975*. (Oxford University Committee for Archaeology Monograph 4.) Oxford: Oxford University Committee for Archaeology.

Cooke, N., F. Brown and C. Phillpotts, 2008. *From Hunter Gatherers to Huntsmen: A history of the Stansted landscape*. (Framework Archaeology Monograph No. 2.) Salisbury: Framework Archaeology.

Cooper, A. 2013. *Prehistory in Practice: A Multi-stranded Analysis of British Archaeology, 1975–2010*. (British Archaeological Reports British Series 577.) Oxford: Archaeopress.

Cooper, A. and T. Yarrow, 2012. 'The Age of Innocence': Personal Histories of the 1960s 'Digging Circuit' in Britain. *International Journal of Historical Archaeology* 16, 300–18.

Cotton, J., J. Mills and G. Clegg, 1986. *Archaeology in West Middlesex. the London Borough of Hillingdon from the earliest hunters to the late Medieval Period*. Uxbridge: Hillingdon Borough Libraries.

Couchman, C. 1975. The Bronze Age cemetery at Ardleigh, Essex: A further consideration. *Essex Archaeology and History* 7, 14–32.

Couchman, C. 1977. Work of the Essex County Council Archaeology Section 1977. *Essex Archaeology and History* 9, 60–94.

Couchman, C. 1980. The Bronze Age in Essex. In D.G. Buckley (ed.), *Archaeology in Essex to AD 1500*. (Council for British Archaeology Research Report 34.) London: Council for British Archaeology, 40–6.

Cracknell, B.E. 1959. *Canvey Island: the History of a Marshland Community*. (University of Leicester Occasional papers No. 12.) Leicester: University of Leicester Department of English Local History.

Crawford, O.G.S. 1912. The distribution of Early Bronze Age settlements in Britain. *The Geographical Journal* 40, 184–197.

Crawford, O.G.S. 1953. *Archaeology in the Field*. London: Dent & Sons.

Creighton, J. 2006. *Britannia: The Creation of a Roman Province*. London: Routledge.

Crummy, P., S. Benfield, N. Crummy, V. Rigby and D. Shimmin 2007. *Stanway: An Elite Burial Site at Camulodunum*. (Britannia Monograph Series No. 24.) London: Society for the Promotion of Roman Studies.

Cunliffe, B. 1968. Early pre-Roman Iron Age communities in eastern England. *Antiquaries Journal* 48, 175–91.

Cunliffe, B. 1975. *Iron Age Communities in Britain* (first edition). London: Routledge.

Cunliffe, B. 1978. *Iron Age Communities in Britain* (second edition). London: Routledge.

Cunliffe, B. 1983. *The Publication of Archaeological Excavations. Report of the Joint Working Party of the Council for British Archaeology and the Department of the Environment*. London: DoE.

Cunliffe, B. 1984. *Danebury: An Iron Age Hillfort in Hampshire. Vol. 1: The Excavations, 1969–1978: The Site. Vol. 2: The Excavations, 1969–1978: The Finds*. (Council for British Archaeology Research Report 52.) London: Council for British Archaeology.

Cunliffe, B. 1991. *Iron Age Communities in Britain* (third edition). London. Routledge.

Cunliffe, B. 2005. *Iron Age communities in Britain: an account of England, Scotland and Wales from the seventh century BC until the Roman Conquest* (fourth edition). London: Routledge.

Cunliffe, B. and T. Rowley (eds.) 1978. *Lowland Iron Age Communities in Europe. Papers presented to a conference of the Department for External Studies held at Oxford, October 1977*. (British Archaeological Reports International Series 48.) Oxford: BAR.

Cunnington, M.E. 1929. *Woodhenge: A description of the site as revealed by excavations carried out there by Mr. and Mrs. B.H. Cunnington, 1926-7*. Devizes: G. Simpson & Co. Ltd.

Cunnington, R.H. 1935. The Cunningtons of Wiltshire. *Wiltshire Archaeological and Natural History Magazine*. 55, 211–36.

Curwen, E.C. 1937. Querns. *Antiquity* 11, 133–51.

Daniel, G. 1967. *The Origins and Growth of Archaeology*. Harmondsworth: Penguin.

Daniel, G. 1969. Editorial. *Antiquity* 43, 1–7.

Daniel, G. 1975. *A Hundred and Fifty Years of Archaeology*. London: Duckworth.

Daniel, G. 1981. *Towards a History of Archaeology*. London: Thames and Hudson.

Darby, H.C. 1952. *The Domesday Geography of Eastern England*. Cambridge: Cambridge University Press.

Darvill, T.C., R.C. Hingley, M.U. Jones and J.R. Timby, 1986. A Neolithic and Iron Age site at The Loders, Lechlade, Gloucestershire. *Transactions of the Bristol & Gloucestershire Archaeological Society* 104, 23–44.

De Jersey, P. 2001. Cunobelin's Silver. *Britannia* 32, 1–44.

Dent, J. 1982. Cemeteries and settlement patterns of the Iron Age on the Yorkshire Wolds. *Proceedings of Prehistoric Society* 48, 437–57.

Dent, J. 1985. Three cart burials from Wetwang, Yorkshire. *Antiquity* 54, 85–92.

Derrida, J. 1995. Archive fever: A Freudian impression. *Diacritics* 25, 9–63.

Devaney, R. 2005. Ceremonial and domestic flint arrowheads *Lithics. Journal of the Lithic Studies Society* 26, 9–22.

Devoy, R.J.N. 1979. Flandrian sea-level changes and vegetational history in the Lower Thames Estuary. *Philosophical Transactions of the Royal Society London* B285, 355–407.

Díaz-Andreu, M. and M. Price, 2009. Christopher Hawkes: His archive and networks in British and European Archaeology. *Antiquaries Journal* 89, 405–26.

Díaz-Andreu, M. and M. Stig Sørensen (eds.) 1998. *Excavating Women: History of Women in European Archaeology*. London: Taylor & Francis.

Dines, H.G. and F.H. Edmunds, 1925. *The Geology of the Country around Romford*. (Memoirs of the Geological Survey of Great Britain. England and Wales.) London: HMSO.

Dixon. P. 1973. Longhouse and roundhouse at Crickley Hill. *Antiquity* 47, 56–9.

Dixon, P. 1986. *A report on the publication questionnaire*. Nottingham: Unpublished paper.

D'Olier, B. 1975. Some aspects of late Pleistocene-Holocene drainage of the River Thames in the eastern part of the London Basin. *Philosophical Transactions of the Royal Society London* A279, 269–77.

Downes, J. 1997. The shrine at South Cadbury Castle: belief enshrined?, in A. Gwilt and C. Haselgrove, C. (eds), *Reconstructing Iron Age Societies: New Approaches to the British Iron Age*. (Oxbow Monograph 71.) Oxford: Oxbow Books, 145–52.

Drewett, P.L. 1982. Later Bronze Age downland economy and excavations at Black Patch, East Sussex. *Proceedings of the Prehistoric Society* 48, 321–400.

Drury, P.J. 1973. Observations of roadworks in Thurrock, 1969–70. *Transactions of the Essex Archaeological Society* 5, 113–22.

Drury, P.J. 1978a. Little Waltham and Pre-Belgic Iron Age Settlement in Essex. In B. Cunliffe and T. Rowley (eds.), *Lowland Iron Age Communities in Europe*. (British Archaeological Reports International Series 48.) Oxford: British Archaeological Reports, 43–76.

Drury, P.J. 1978b. *Excavations at Little Waltham 1970–71*. (Council for British Archaeology Research Report 26.) York: Council for British Archaeology.

Drury, P.J and W.J. Rodwell, 1973. Excavations at Gun Hill, West Tilbury. *Transactions of the Essex Archaeological Society* 5, 48–112.

Dungworth, D. 1996. The production of copper alloys in Iron Age Britain. *Proceedings of the Prehistoric Society* 62, 399–421.

Dungworth, D. and J. Bayley, 1999. *Crucibles, moulds and tuyeres from Mucking, Essex*. Ancient Monuments Laboratory Report 72/1999.

Dunning, G.C. 1935. The swan's-neck and ring-headed pins of the Early Iron Age in Britain. *Archaeological Journal* 91, 269–95.

Dyson, L., G. Shand and S. Stevens, 2000. Causewayed enclosures. *Current Archaeology* 168, 470–2.

Ecclestone, J. 1995. Early Iron Age settlement at Southend: excavations at Fox Hall Farm, 1993. *Essex Archaeology and History* 26, 24–39.

Eco, U. 1980. *The Name of the Rose*. London: Secker & Warburg.

Eco, U. 2009. *The Infinity of Lists*. London: Maclehose Press.

Eddy, M.R. 1982. Kelvedon: The origins and development of a small Roman town. (Essex County Council Occasional Paper 3.) Chelmsford: Essex County Council.

Eddy, M. and D. Priddy, 1981. Work of the Essex County Council Archaeology Section. *Essex Archaeology and History* 13.

Edmonds. M. 1995. *Stone Tools and Society*. London: Batsford.

Edmonds, M., C. Evans and D. Gibson, 1999. Assembly and collection – lithic complexes in the Cambridgeshire Fenlands. *Proceedings of Prehistoric Society* 65, 47–87.

Ellison, A. 1975. *Pottery and Settlements of the Later Bronze Age in Southern England*. Unpublished PhD thesis, University of Cambridge.

Ellison, A. 1978. The Bronze Age in Sussex. In P. Drewett (ed.), *Archaeology of Sussex to AD 1500*. (Council for British Archaeology Research Report 29.) London: Council for British Archaeology, 30–7.

Ellison, A. 1980. Settlement and regional exchange: a case study. In J. Barrett and R. Bradley (eds.), *Settlement and Society in the British Bronze Age*. (British Archaeological Report 83.) London: Council for British Archaeology, 127–40.

Ellison, A. 1987. The Bronze Age settlement at Thorny Down: pots, post-holes and patterning. *Proceedings of the Prehistoric Society* 53, 385–92.

Ellison, A. 1988. Bucket shaped vessels of the Deverel Rimbury tradition: Discussion. In I.H. Longworth, A. Ellison and V. Rigby, *Excavations at Grimes Graves Norfolk 1972–1976, Fascicule 2*. London: British Museum, 36–50.

Elsdon, S.M. 1975. *Stamp and Roulette Decorated Pottery of the La Tène Period in Eastern England*. (British Archaeological Reports , British Series 10.) Oxford: British Archaeological Reports.

Elsdon, S.M. 1997. *Old Sleaford Revealed: a Lincolnshire settlement in Iron Age, Roman, Saxon and medieval times: excavations 1882–1995*. (Oxbow Monograph 78.) Oxford: Oxbow Books.

Elsdon S.M. 2001. Margaret Jones [obituary], *The Independent* (Saturday 31 March 2001). Available online at www.independent.co.uk (last accessed 11.4.2011).

Elsdon, S.M. and P.M. Barford, 1996. Loomweights. In J. May (ed), *Dragonby: report on excavations at an Iron Age and Romano-British settlement in North Lincolnshire*. (Oxbow Monograph 61.) Oxford: Oxbow Books, 330–2.

Elstob, E. 1709 (1915). *An English Saxon Homily on the Birthday of St Gregory: anciently used in the English-Saxon church. Giving an account of the conversion of the English from paganism to Christianity*. London: W. Bowyer.

English Heritage. 2008. *Management of Research Projects in the Historic Environment – Project Planning Note 3 Archaeological Excavations*. www.english-heritage.org.uk/publications/morphe-project-planning-note-3/

Erith, F. 1963. The Rochford gold necklace and the Middle Bronze Age in Essex. *Colchester Archaeological Group Bulletin* 6(1), 2–5.

Erith, F.H. and I.H. Longworth, 1960. A Bronze Age Urnfield on Vinces Farm, Ardleigh, Essex. *Proceedings of the Prehistoric Society* 26, 178–92.

Etté, J.P.A. 1993. The Late Bonze Age. In A. Clark, *Excavations at Mucking, Volume 1: The Site Atlas*. (English Heritage Archaeological Report 20.) London: British Museum, 18–19.

Evans, C. 1987. Nomads in 'Waterland'?: Prehistoric transhumance and Fenland archaeology. *Proceedings of the Cambridge Antiquarian Society* 76, 27–39.

Evans, C. 1989a. Acts of enclosure: A consideration of concentrically organised causewayed enclosures. In J. Barrett and I. Kinnes (eds.), *The Archaeology of Context in the Neolithic and Bronze Age: recent trends*. Sheffield: University of Sheffield, 85–96.

Evans, C. 1989b. Archaeology and modern times: Bersu's Woodbury 1938 & 1939. *Antiquity* 63, 436–50.

Evans, C. 1997. Hydraulic communities: Iron Age enclosure in the East Anglian Fenlands. In A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies: New Approaches to the British Iron Age*. (Oxbow Monograph 71.) Oxford: Oxbow Books, 216–27.

Evans, C. 1998a. Constructing houses and building context: Bersu's Manx Roundhouse Campaign. *Proceedings of the Prehistoric Society* 64, 183–201.

Evans, C. 1998b. Historicism, chronology and Straw Men: Situating Hawkes' Ladder of Inference. *Antiquity* 72, 398–404.

Evans, C. 2003. *Power and Island Communities: Excavations at the Wardy Hill Ringwork, Coveney, Ely*. (East Anglian Archaeology Report 103.) Cambridge: Cambridge Archaeological Unit.

Evans, C. 2007. 'Delineating Objects': Nineteenth century antiquarian culture and the project of Archaeology. In S. Pearce (ed.), *Visions of Antiquity: The Society of Antiquaries of London 1707–2007.* (Society of Antiquaries of London Archaeologia 111.) London: Society of Antiquaries of London, 266–305.

Evans, C. 2012. Archaeology and the Repeatable Experiment: A comparative agenda, in *Image, Memory and Monumentality: Archaeological engagements with the material world*, eds. A.M. Jones, J. Pollard, M.J. Allen and J. Gardiner. (Prehistoric Society Research Paper No. 5.) Oxford: Oxbow Books/The Prehistoric Society, 295–306.

Evans, C. 2013. Against Narrative: Reading and gauging sequences. *Landscapes* 14, 103–112.

Evans, C., with G. Appleby, S. Lucy and R. Regan, 2013b. *Process and History: Romano-British Communities at Colne Fen, Earith.* (The Archaeology of the Lower Ouse Valley, Vol. II.) Cambridge: Cambridge Archaeological Unit.

Evans, C., with E. Beadsmoore and L. Webley, 2009. *Fengate Revisited*. (CAU Landscape Archives: Historiography and Fieldwork 1.) Cambridge: McDonald Institute for Archaeological Research.

Evans, C., with M. Brudenell, R. Patten and R. Regan, 2013a. *Process and History: Prehistoric Communities at Colne Fen, Earith.* (The Archaeology of the Lower Ouse Valley, Vol. I.) Cambridge: Cambridge Archaeological Unit.

Evans, C., M. Edmonds and S. Boreham, 2006. 'Total Archaeology' and Model Landscapes: Excavation of the Great Wilbraham causewayed enclosure, Cambridgeshire, 1975–76. *Proceedings of the Prehistoric Society* 72, 113–62.

Evans, C. and I. Hodder, 2006a. *A Woodland Archaeology: Neolithic sites at Haddenham.* (The Haddenham Project Volume I.) Cambridge: McDonald Institute for Archaeological Research.

Evans, C. and I. Hodder, 2006b. *Marshland Communities and Cultural Landscapes: from the Bronze Age to present day.* (The Haddenham Project Volume II.) Cambridge: McDonald Institute for Archaeological Research.

Evans, C., M. Knight and L. Webley, 2007. Iron Age settlement and Romanization on the Isle of Ely: The Hurst Lane Reservoir site. *Proceedings of the Cambridge Antiquarian Society* 96, 41–78.

Evans, C., with D. Mackay and L. Webley, 2008. *Borderlands – The Archaeology of the Addenbrooke's Environs, South Cambridge.* (CAU Landscape Archives: New Archaeologies of the Cambridge Region Series) Cambridge/Oxford: Cambridge Archaeological Unit/Oxbow Books.

Evans, C., with J. Tabor and M. Vander Linden, Forthcoming. *Twice-crossed River: Prehistoric and Palaeoenvironmental Investigations at Barleycroft Farm/Over, Cambridgeshire* (The Archaeology of the Lower Ouse Valley, Vol. III). Cambridge: Cambridge Archaeological Unit.

Evans, J. 1956. *A History of the Society of Antiquaries*. Oxford: Oxford University Press.

Evison, V.I. 1981. Distribution maps of England in the first two phases. In V.I. Evison (ed.), *Angles, Saxons and Jutes, Essays Presented to J.N.L. Myres*. Oxford: OUP, 126–67.

Farrar, R.A.H. (ed.) 1971. Archaeological notes and news, *Proceedings of the Dorset Natural History and Archaeological Society*, 92, 125–58.

Fasham, P.J. and R.J.B. Whinney, 1991. *Archaeology and the M3*. (Trust for Wessex Archaeology/Hampshire Field Club Monograph 7.) Winchester: Hampshire Field Club.

Fawn, A.J., K.A. Evans, I. McMaster and G.M.R. Davies,

1990. *The Red Hills of Essex: salt-making in antiquity*. Colchester: Colchester Archaeological Group.

Feugère, M. 1985. *Les fibules en Gaule Méridionale de la conquête à la fin du Ve siècle après J.-C.* (Revue Archéologique de Narbonnaise Supplément 12.) Paris: Éditions du Centre national de la recherche scientifique.

Fitzpatrick, A.P. 1997. *Archaeological Excavations on the Route of the A27 Westhampnett Bypass, West Sussex, 1992. Vol.2, The late Iron Age, Romano-British, and Anglo-Saxon cemeteries*. (Wessex Archaeology Report No. 12.) Salisbury: Trust for Wessex Archaeology.

Fitzpatrick, A.P. 2002. The Amesbury archer: a well-furnished Early Bronze Age burial in southern England. *Antiquity* 76, 629–30.

Fitzpatrick, A.P. 2011. *The Amesbury Archer and the Boscombe Bowmen – Bell Beaker burials at Boscombe Down, Amesbury, Wiltshire*. Wessex Archaeology Report No. 27.

Fitzpatrick, A.P. 2013. Call for finds: Late Iron Age circular 'knives'. *Later Prehisotric Finds Group Newsletter* 2, 21.

Fleming, A. 1978. The prehistoric landscape of Dartmoor. Part 1: South Dartmoor. *Proceedings of the Prehistoric Society* 44, 97–124.

Foreman, S. and D. Maynard, 2002. A late Iron Age and Romano-British farmstead at Ship Lane, Aveley. Excavations on the line of the A13 Wennington to Mar Dyke road improvement, 1994–5. *Essex Archaeology & History* 33, 123–56.

Foster, J. 1980. *The Iron Age Moulds from Gussage All Saints*. (British Museum Occasional Paper 12.) London: British Museum.

Foster, J. 1986. *The Lexden Tumulus: A Re-appraisal of an Iron Age Burial from Colchester, Essex*. (British Archaeological Reports British Series 156.) Oxford: BAR.

Foster, J, 1999. The metal finds. In R. Niblett, *The Excavation of a Ceremonial Site at Folly Lane, Verulamium*. (Britannia Monograph Series 14.) London: Society for the Promotion of Roman Studies, 133–80.

Fowler, E. 1960. The origins of the penannular brooch in Europe. *Proceedings of the Prehistoric Society* 26, 149–77.

Fowler, P.J. (ed.) 1972. *Archaeology and the Landscape; Essays for L. V. Grinsell.* London: J. Baker.

Fowler, P.J. 1979. Archaeology and the M4 and M5 motorways, 1965–78. *Archaeological Journal* 136, 12–26.

Fowler, P.J. 2001. Time for a last quick one? *Antiquity* 75, 606–8.

Fox, C., 1923. *The Archaeology of the Cambridge Region*. Cambridge: Cambridge University Press.

Fox, A. 2000. *Aileen – A Pioneering Archaeologist.* Leominster: Gracewing.

Framework Archaeology, 2006. *Landscape Evolution in the Middle Thames Valley: Heathrow Terminal 5 Excavations Volume 1, Perry Oak*. (Framework Archaeology Monograph 1.) Oxford: Framework Archaeology.

Framework Archaeology, 2010. *Landscape Evolution in the Middle Thames Valley: Heathrow Terminal 5 Excavations, Vol. 2*. (Framework Archaeology Monograph 3.) Oxford: Framework Archaeology.

Freidin, N. 1982. *The Early Iron Age in the Paris Basin*. (British Archaeological Reports International Series 131.) Oxford: BAR.

Frere, S. (ed.) 1975. *Principles of Publication in Rescue Archaeology*. London: Ancient Monuments Board for the DoE.

Frere, S.S., Hassell, M.W.C. and R.S.O. Tomlin. 1989. Roman Britain in 1988. *Britannia* 20, 257–345

Fulford, M., T. Champion and A. Long, 1997. *England's Coastal Heritage: A Survey for English Heritage and the RCHM*E. (English Heritage Archaeological Report 15.) London: English Heritage.

Fulford, M., A. Clarke, N. Parkhurst and S. Lucas, 2013. *Silchester Insula IX: The 'Town Life' Project 2012*. Reading: Dept. of Archaeology.

Gaffney, V., K. Thomson and S. Fitch, 2007. *Mapping Doggerland. The Mesolithic Landscapes of the Southern North Sea*. Oxford: Archaeopress.

Galloway, J.A. 2009. Storm flooding, coastal defence and land use around the Thames estuary and tidal river, *c.* 1250–1450. *Journal of Medieval History* 35, 171–88.

Galloway, J.A. and J.S. Potts, 2007. Marine flooding in the Thames Estuary and tidal river *c.* 1250–1450: impact and response. *Area* 39.3, 370–9.

Garrow, D. 2006. *Pits, settlement and deposition during the Neolithic and Early Bronze Age in East Anglia*. (British Archaeological Reports, British Series 414.) Oxford: Archaeopress.

Garrow, D. and C. Gosden 2012. *Technologies of Enchantment? Exploring Celtic Art: 400 BC to AD 100*. Oxford: Oxford University Press.

Garrow, D., S. Lucy and D. Gibson 2006. *Excavations at Kilverstone, Norfolk: an Episodic Landscape History*. (East Anglia Archaeology Report 113.) Cambridge: Cambridge Archaeological Unit.

Garwood, P. 1999. Grooved Ware in southern Britain. Chronology and interpretation. In R. Cleal and A. MacSween (eds.), *Grooved Ware in Britain & Ireland*. (Neolithic Studies Group Seminar Papers 3.) Oxford: Oxbow, 145–77.

Gelling, P.S. 1977. Excavations on Pilsdon Pen, Dorset, 1964–71. *Proceedings of the Prehistoric Society* 43, 263–86.

Gent, H. 1983. Centralized storage in later prehistoric Britain. *Proceedings of the Prehistoric Society* 49, 243–67.

Germany, M. 2003. *Excavations at Great Holts Farm, Boreham, Essex, 1992–94*. (East Anglian Archaeology Report 105.) Chelmsford: Essex County Council.

Germany, M. 2007. *Neolithic and Bronze Age Monuments and Middle Iron Age Settlement at Lodge Farm, St Osyth, Essex: Excavations 2000–3*. (East Anglian Archaeology Report 117.) Chelmsford: Essex County Council: Historic Environment.

Gibson, A.M. 1980. A reinterpretation of the stake circles beneath Chippenham Barrow V, and a discussion of the coarse pottery. *Proceedings of the Cambridge Antiquarian Society* 70, 47–60.

Gibson, A.M. 1981. *Beaker Domestic Sites: a study in the domestic pottery of the late third and early second millennia B.C. in the British Isles*. Unpublished PhD thesis, University of Leicester.

Gibson, A.M. 1982. *Beaker Domestic Sites: A Study of the Domestic Pottery of the Late Third and Early Second Millennia BC in the British Isles*. (British Archaeological Reports British Series 107.) Oxford: BAR.

Giles, M. 2007. Making metal and forging relations: Iron-working in the British Iron Age. *Oxford Journal of Archaeology* 26: 395–413.

Giles, M. 2012. *A Forged Glamour: Landscape, Identity and Material Culture in the Iron Age*. Oxford: Windgather Press.

Gingell, C.J. and E. Morris, 2000. Pottery. In A.J. Lawson, *Potterne 1982–5: Animal Husbandry in Later Prehistoric Wiltshire*. Salisbury: Wessex Archaeology, 136–77.

Going, C.J. 1996. The Roman Countryside. In O. Bedwin (ed.), *The Archaeology of Essex: Proceedings of the Writtle Conference*. Chelmsford: Essex County Council Planning Dept., 95–107.

Gosden, C. and G. Lock 1998. Prehistoric Histories. *World Archaeology* 30, 2–12.

Grant, A. 1975. Animal bones. In B. Cunliffe, *Excavations at Portchester Castle* (Volume 1.) London: Society of Antiquaries of London, 378–408.

Green, H.S. 1980. *The Flint Arrowheads of the British Isles*. (British Archaeological Reports British Series 75.) Oxford: BAR.

Green, H.S. 1984. Flint arrowheads: typology and interpretation. *Lithics* 5, 19–39.

Greenwood, P. 1989. Uphall Camp, Ilford, Essex: an Iron Age fortification. *London Archaeologist* 6, 94–101.

Gregory, T. 1991. *Excavations in Thetford, 1980–1982: Fison Way*. (East Anglian Archaeology Report 53.) Dereham: Norfolk Museum Service.

Gregory, T. and D. Gurney, 1986. *Excavations at Thornham, Warham, Wighton and Caistor, Norfolk*. (East Anglian Archaeology 30.) Dereham: Norfolk Museum Service.

Grieve, H. 1959. *The Great Tide: the story of the 1953 flood disaster in Essex*. Chelmsford: Essex Records Office.

Grimes, W.F. and J. Close-Brooks, 1993. The Excavations of Caesar's Camp, Heathrow, Harmondsworth, Middlesex, 1944. *Proceedings of the Prehistoric Society* 59, 303–60.

Grinsell, L.V., P. Rahtz and A. Warhurst, 1966. *The Preparation of Archaeological Reports*. London: John Baker.

Gruel, P. & Haselgrove, C. 2007. British potins abroad: a new find from central France and the Iron Age in southern England. In C. Gosden, H. Hamerow, P. de Jersey and G. Lock (eds.), *Communities and Connections: essays in honour of Barry Cunliffe*. Oxford: Oxford University Press, 240–62.

Guttmann, E. and J. Last, 2000. A Late Bronze Age Landscape at South Hornchurch, Essex. *Proceedings of the Prehistoric Society* 66, 319–59.

Hall, D. and J. Coles, 1994. *Fenland Survey: an essay in landscape and persistence*. (English Heritage Archaeological Report 1.) London: English Heritage.

Hamerow, H. 1993. *Excavations at Mucking* (Vol. 2): *The Anglo-Saxon Settlemen*t. (English Heritage Archaeological Report 21.) London: English Heritage.

Hamilton, S. 1988. Middle Iron Age, in T.J. Wilkinson, *Archaeology and Environment in South Essex: Rescue Archaeology along the Grays By-pass 1979/80*. Essex. (East Anglian Archaeology Report 42.) Chelmsford: Archaeology Section Essex County Council, 80–6.

Hamilton, S. 2007. Cultural choices in the 'British Eastern Channel Area' in the Late Pre-Roman Iron Age. In C. Haselgrove and T. Moore (eds), *The Later Iron Age in Britain and Beyond*. Oxford: Oxbow, 81–106.

Harding. A.F. 2000. *European Societies in the Bronze Age*. Cambridge: Cambridge University Press.

Harding, A.F. 2013. *Salt in Prehistoric Europe*. Leiden: Sidestone Press.

Harding, D.W. 1973. Round and rectangular: Iron Age houses, British and foreign. In C.F.C. and S. Hawkes (eds.), *Greeks, Celts and Romans*. London: J.M. Dent, 43–62.

Harding, D.W. 2009. *The Iron Age Round-house: later prehistoric building in Britain and beyond*. Oxford: Oxford University Press.

Harris, E.C. 1979. *Principles of Archaeological Stratigraphy*. London: Academic Press.

Harrison, E. 2000. 'Pottery and fired clay', in E.B.A. Guttmann and J.A Last, Late Bronze Age Landscape at South Hornchurch, Essex. *Proceedings of the Prehistoric Society* 66, 337–44.

Haselgrove, C. 1987. The archaeological context of Iron Age coin finds on major settlement sites in Eastern England: Colchester and Saint Albans. In J. Bousquet and P. Naster (eds.), *Mélanges offerts au docteur J.-B. Colbert de Beaulieu*. Paris: Le Léopard d'Or, 483–96.

Haselgrove. C. 1996. Roman impact on rural settlement and society in southern Picardy. In N. Roymans (ed.), *From the sword to the plough: three studies on the earliest Romanization of Northern Gaul*. Amsterdam: Amsterdam Archaeological Studies 1, 127–88.

Haselgrove, C. 1997. Iron Age brooch deposition and chronology. In A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies: new approaches to the British Iron Age*. (Oxbow monograph 71.) Oxford: Oxbow, 51–72.

Haselgrove, C. 2003. 'The brooch assemblage in wider perspective', in C. Evans 2003, Britons and Romans at Chatteris: investigations at Langwood Farm, Cambridgeshire. *Britannia* 34, 239–42.

Haselgrove, C. 2006. The impact of the Roman Conquest on indigenous coinages in Belgic Gaul and southern Britain. In P. de Jersey (ed.), *Celtic Coinage: new discoveries, new discussion*. (British Archaeological Reports International Series 1532.) Oxford: Archaeopress, 97–115.

Haselgrove, C. 2007. The age of enclosure: Later Iron Age settlement and society in northern France. In C. Haselgrove and T. Moore (eds), *The Later Iron Age in Britain and Beyond*. Oxford: Oxbow, 492–522.

Havis, R. and H. Brooks, 2004. *Excavations at Stansted Airport, 1986–91*. (East Anglian Archaeology Report 107.) Chelmsford: Heritage Conservation and Essex County Council.

Hawkes. C.F.C. 1933. Early settlement at Runcton Holme, Norfolk. Pt. 2: The second occupation: a peasant settlement of the Iceni. *Proceedings of the Prehistoric Society of East Anglia 7*.

Hawkes, C.F.C. and P. Crummy, 1995. *Camulodunum 2*. (Colchester Archaeological Reports 11.) Colchester: Colchester Archaeological Trust.

Hawkes, C.F.C. and C. Fell, 1945. The early Iron Age settlement at Fengate, Peterborough. *Archaeological Journal* 100, 188–223.

Hawkes, C.F.C. and C. Fell, 1959. The ABC of the British Iron Age. *Antiquity* 33, 170–82.

Hawkes, C.F.C. and M.R. Hull, 1947. *Camulodunum. First reports on the excavations at Colchester, 1930–1939*. (Society of Antiquaries of London Research Report XIV.) Oxford: Society of Antiquaries of London & Oxford University Press.

Hayman, G., P. Jones and R. Poulton, 2012. *Settlement Sites and Sacred Offerings: prehistoric and later archaeology in the Thames valley, near Chertsey*. Woking: Spoilheap Publications.

Healy, F. 1984. Farming and field monuments: the Neolithic in Norfolk. In C. Barringer (ed.), *Aspects of East Anglian Pre-History*. Norwich: Geo Books, 77–140.

Healy, F. 1988. *The Anglo-Saxon Cemetery at Spong Hill, North Elmham, Part VI: Occupation during the Seventh to Second Millennia BC*. (East Anglian Archaeology Report 39.) Gressenhall: Norfolk Archaeological Unit, Norfolk Museums Service.

Healy, F. 2013a. In the shadow of hindsight: pre-Iron Age Spong Hill viewed from 2010, in C. Hills and S. Lucy, *Spong Hill (Pt. IX): Chronology and Synthesis*. Cambridge: McDonald Institute Monographs, 12–21.

Healy, F. 2013b. Starting something new: The Neolithic in Essex, in The Archaeology of Essex: Proceedings of the Chelmsford Conference (2008), *Transactions of the Essex Society for Archaeology and History* 3 (for 2012), 1–25.

Healey, E. and J. Catton, 1983. Lithics and computers: towards a standard question list. *Lithics* 4, 50–66.

Hedges, J.D. 1980. The Neolithic in Essex. In D. Buckley (ed.), *Archaeology in Essex to AD 1500*. London: Council for British Archaeology, 26–39.

Hedges, J.D. and D.G. Buckley, 1978. Excavations at a Neolithic causewayed enclosure, Orsett, Essex, 1975. *Proceedings of the Prehistoric Society* 44, 219–308.

Heslop, D.H. 2008. *Patterns of Quern Production, Acquisition and Deposition. A Corpus of Beehive Querns from Northern Yorkshire and Southern Durham*. (Yorkshire Archaeological Society Occasional Paper No. 5.) Leeds: Yorkshire Archaeological Society.

Hey, G., A. Bayliss and A. Boyle, 1999. Iron Age inhumation burials at Yarnton, Oxfordshire. *Antiquity*, 73, 551–62.

Higgs, E. (ed.) 1972. *Papers in Economic Prehistory*. Cambridge: Cambridge University Press.

Hill, J.D. 2007. The dynamics of social change in later Iron Age eastern and south-eastern England. In C. Haselgrove and T. Moore (eds), *The Later Iron Age in Britain and Beyond*. Oxford: Oxbow, 16–40.

Hill, J.D., C. Evans and M. Alexander, 1999. The Hinxton Rings – A Late Iron Age cemetery at Hinxton, Cambridgeshire, with a reconsideration of northern Aylesford-Swarling distributions. *Proceedings of the Prehistoric Society* 65, 243–74.

Hills, C.M. 1979. The archaeology of Anglo-Saxon England in the pagan period: a review. *Anglo-Saxon England* 8, 297–329.

Hills, C.M. 2007. History and archaeology: The state of play in early medieval Europe. *Antiquity* 81, 191–200.

Hills, C.M. and S.J. Lucy, 2013. *Spong Hill IX: Chronology and Synthesis*. McDonald Institute Monograph Series. Cambridge: McDonald Institute for Archaeological Research.

Hirst, S. and D. Clark, 2009. *Excavations at Mucking* (Vol. 3): *The Anglo-Saxon Cemeteries*. London: Museum of London.

Hobbs, R. 1996. *British Iron Age Coins in the British Museum*. London: British Museum.

Hodder, I. 1992. *Theory and Practice in Archaeology*. London: Routledge.

Hodson, F.R. 1964. Cultural grouping within the British pre-Roman Iron Age. *Proceedings of the Prehistoric Society* 30, 99–110.

Holgate, R. 1996. Essex *c*. 4000–1500 BC. In O. Bedwin (ed.), *The Archaeology of Essex: Proceedings of the Writtle Conference*. Chelmsford: Essex County Council Planning Department, 15–25.

Holman, D. 2000. Iron Age coinage in Kent: a review of current knowledge. *Archaeologia Cantiana* 120, 205–33.

Holman, D. 2005. Iron Age coinage and settlement in East Kent. *Britannia* 36, 1–54.

Howard, H. 1983. *The Bronze Casting Industry in Later Prehistoric Southern Britain*. Unpublished PhD thesis, University of Southampton.

Howell, I., D. Swift and B. Watson, 2011. *Archaeological Landscapes of East London: Six multi-period sites excavated in advance of gravel quarrying in the London Borough of Havering*. (Museum of London Monograph 54.) London: Museum of London.

Hudson, K. 1981. *A Social History of Archaeology: The British Experience*. London: Macmillan.

Huggins, P. 1978. Excavation of Belgic and Romano-British farm with Middle Saxon cemetery and churches at Nazeingbury, Essex, 1975–76. *Essex Archaeology and History* 10, 29–117.

Hull, M.R. and C.F.C. Hawkes, 1987. *Corpus of Ancient Brooches in Britain by the late M.R. Hull. Pre-Roman Bow Brooches*. (British Archaeological Reports British Series 168.) Oxford: BAR.

Hutcheson, N.C.G., 2004 *Later Iron Age Norfolk: Metalwork, Landscape and Society*. Oxford: Archaeopress.

Hutton, R. 2009. *Blood and Mistletoe: The History of the Druids in Britain*. New Haven, CT: Yale University Press.

Ingle, C. and H. Saunders, 2011. *Aerial Archaeology in Essex: the role of the National Mapping Programme in interpreting the landscape*. (East Anglia Archaeology Report 136.) Chelmsford: Essex County Council Learning Services.

Ireland, S. 1986. *Roman Britain: a sourcebook*. London: Routledge.

Jackson, R. 1990. *Camerton: The Late Iron Age and Early Roman Metalwork*. London: British Museum.

Jacobi, G. 1974. *Die Ausgrabungen in Manching: 5, Werkzeug und Gerät aus dem Oppidum von Manching [Excavations at Manching: 5, tools and equipment from the oppida]* Wiesbaden: Franz Steiner Verlag.

Jacobi, R.M. 1980. The Mesolithic in Essex in D. Buckley (ed.), *Archaeology in Essex to 1500*. (Council for British Archaeology Research Report 48.) York: Council for British Archaeology, 14–25.

Jacobi, R.M. 1996. Late Upper Palaeolithic and Mesolithic in Essex. In O. Bedwin (ed.) *The Archaeology of Essex: Proceedings of the Writtle Conference*. Chelmsford: Essex County Council, 10–14.

Jarman, C. 2010. *Excavations at Downlands, Walmer, Kent*. Canterbury: Canterbury Archaeological Trust.

Jay, M., C. Haselgrove, D. Hamilton, J.D. Hill and J. Dent, 2012. Chariots and context: New radiocarbon dates from Wetwang and the chronology of Iron Age burials and brooches in East Yorkshire. *Oxford Journal of Archaeology* 31, 161–89.

Jay, M. and M.P. Richards, 2007. The Beaker People Project: progress and prospects for the carbon, nitrogen and sulphur isotopic analysis of collagen. In M. Larsson & M. Parker Pearson (eds.), *From Stonehenge to the Baltic: Living with cultural diversity in the third millennium BC*. (British Archaeological Reports International Series 1692.) Oxford: BAR, 77–82.

Jermyn, S.T. 1978. *Flora of Essex*. Colchester: Essex Naturalists' Trust.

Jessup, R.F. 1959. Barrows and walled cemeteries in Roman Britain. *Journal of the British Archaeological Association* 22, 1–32.

Jones, A. 1997. An Iron Age square barrow at Diddington, Cambridgeshire. Third interim report of excavations at Little Paxton Quarry, 1996. *Proceedings of the Cambridge Antiquarian Society* 86: 5–12.

Jones, A. (ed.) 2011. *Excavations at Little Paxton Quarry, Cambridgeshire, 1992–1998: Prehistoric and Romano-British Settlement and Agriculture in the River Great Ouse Valley*. (British Archaeological Report British Series 545.) Oxford: Archaeopress.

Jones, M.J. 1991. Review: 'The Prehistoric and Roman Settlement at Kelvedon, Essex' by K.A. Rodwell. *Britannia* 22, 346.

Jones, M.U. 1957. Excavations at Stanton Low, in the Upper Ouse Valley, during March, 1957. *Records of Buckinghamshire 16(3)*, 198–241.

Jones, M.U. 1968. A thousand years of Thurrock's past. *Journal of Thurrock Local History Society (Panorama)* 11, 33–45.

Jones, M.U. 1969. Saxon pottery from a hut at Mucking, Essex. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderroek* 19, 145–56.

Jones, M.U. 1971a. The Mucking crop-mark sites: a progress report. *Journal of Thurrock Local History Society (Panorama)* 14, 33–7.

Jones, M.U. 1971b. *Aldborough*, West Riding, 1964, Yorkshire. *Archaeological Journal* 43, 39–78.

Jones, M.U. 1972a. The Mucking, Essex, Crop Mark Sites. *Essex Journal* 7(3), 65–76.

Jones, M.U. 1972b. Potters' Graffiti from Mucking, Essex. *Antiquaries Journal* 52, 335–8.

Jones, M.U. 1973. An ancient landscape palimpsest at Mucking. In *Essex Archaeology and History* 5, 6–12.

Jones, M.U. 1974. Excavations at Mucking, Essex: a second interim report. *Antiquaries Journal* 54, 183–99.

Jones, M.U. 1975a. The Mucking excavations, 1974. *Journal of Thurrock Local History Society (Panorama)* 18, 32–41.

Jones, M.U. 1975b. A potter's tournette of the Early Iron Age from Mucking, Essex. *Antiquaries Journal* 55(2), 408–9.

Jones, M.U. 1975c. ?Woolcomb warmers from Mucking, Essex. *Antiquaries Journal* 55, 411–13.

Jones, M.U. 1976. The Mucking excavations, 1976. *Panorama* 20, 34–43.

Jones, M.U. 1977. Prehistoric salt equipment from a pit at Mucking, Essex. *Antiquaries Journal* 57, 317–9.

Jones, M.U. 1978a. Roughground, Lechdale and Mucking, Essex. In H.C. Bowen and P. J. Fowler (eds.), *Early land allotment in the British Isles: a survey of recent work*. (British Archaeological Reports British Series 48.) Oxford: BAR, 171–3.

Jones, M.U. 1978b. Mucking excavation. In *Essex Archaeological News* 62, 15–16.

Jones, M.U. 1978c. Die Siedlung Mucking in Essex. In C. Ahrens (ed.), *Sachsen und Angelsachsen: Ausstellung des Helms-Museums, Hamburgisches Museum für Vor- und Frühgeschichte, 18 Nov 1978–28 Feb 1979*. Helms-Museum Monograph 32. Hamburg: Helms-Museum, 413–22.

Jones, M.U 1979. Saxon Mucking – a post-excavation note. In S. Chadwick Hawkes, D. Brown and J. Campbell (eds.), *Anglo-Saxon studies in Archaeology and History* (Vol. 1). (British Archaeological Reports British Series 72.) Oxford. BAR, 21–37.

Jones, M.U. 1980. Mucking Post-Excavation. 1979. *Information Sheet*. Essex County Council Planning Department, 17–21.

Jones, M.U. 1981. Of snails – and sod houses – and hot cross buns. *Journal of the Thurrock Local History Society (Panorama)* 24, 48–51.

Jones, M.U. 1983. Early Saxon settlement finds. *Medieval Archaeology* 27, 141–3.

Jones, M.U. 1985a. Cereals at Mucking. *Journal of the Thurrock Local History Society (Panorama)* 27, 13–19.

Jones, M.U. 1985b. Computer graphics and archaeology. *Journal of the Thurrock Local History Society (Panorama)* 27, 20–1.

Jones, M.U. 1993. Background. In A. Clark. (ed.), *Excavations at Mucking, Volume 1: The Site Atlas*. (English Heritage Archaeological Reports, 20.) London: English Heritage, 6–10.

Jones, M.U. and D. Bond, 1980. Later Bronze Age Settlement at Mucking, Essex. In J. Barrett and R. Bradley (eds.) *Settlement and Society in the British Later Bronze Age*. (British Archaeological Reports British Series 83.) Oxford: BAR, 471–81.

Jones, M.U. and J. Catton, 1971. Crop-marks recorded in 1970. *Journal of the Thurrock Local History Society (Panorama)* 14, 38–42.

Jones, M.U., V.I. Evison and J.N.L. Myres, 1968. Crop-mark sites at Mucking, Essex. *Antiquaries Journal* 48, 210–30.

Jones, M.U. and W.T. Jones, 1975. The crop-mark sites at Mucking, Essex, England, in R. Bruce-Mitford (ed.), *Recent Archaeological Excavations in Europe*. London/ Boston: Routledge and Kegan Paul, 133–87.

Jones, M.U. and W.J. Rodwell, 1973. Romano-British pottery kilns at Mucking. *Essex Archaeology and History* 5, 13–47.

Jones, S., A. MacSween, S. Jeffrey, R. Morris and M. Heyworth, 2001. *From the Ground Up: The publication of archaeological projects (a user needs survey)*. Council for British Archaeology (www.britarch.ac.uk).

Jones, W.T. 1979a. The Mucking windmill. *Journal of the Thurrock Local History Society (Panorama)* 23, 42–6.

Jones, W.T. 1979b. A crucial crop-mark at Mucking, Essex. *Aerial Archaeology* 4, 84–7.

Jope, E.M. 1961. Daggers of the early Iron Age in Britain. *Proceedings of the Prehistoric Society* 27, 307–43.

Kinnes, I. 1978. The Neolithic Pottery. In J.D. Hedges and D.G. Buckley, Excavations at a Neolithic causewayed enclosure, Orsett, Essex, 1975. *Proceedings of the Prehistoric Society* 44, 259–67.

Kinnes, I. 1998. The Pottery. In F. Pryor, *Etton: Excavations at a Neolithic Causewayed Enclosure near Maxey, Cambridgeshire 1982–7*. (English Heritage Archaeological Report 18.) London: English Heritage, 161–209.

Kinnes, I, F. Cameron, S. Trow and D. Thomson 1998. *Excavations at Cliffe, Kent*. (British Museum Occasional Paper No. 69.). London: British Museum.

Kinory, J. 2012. *Salt Production, Distribution and Use in the British Iron Age*. (British Archaeological Reports British Series 559.) Oxford: Archaeopress.

Knight, D. and A.J. Howard, 2004. *Trent Valley Landscapes*. King's Lynn: Heritage Marketing and Publications.

Knight, M. 2009. Prehistoric pottery overview. In C. Evans with E. Beadsmoore and L. Webley, *Fengate Revisited*. (CAU Landscape Archives: Historiography and Fieldwork 1.) Cambridge: McDonald Institute for Archaeological Research, 155–64.

Knight, M., M. Brudenell and D. Gibson, forthcoming. *Pattern & Process – Landscape Prehistories from the Whittlesey*

Brick Pits: The Bradley Fen and King's Dyke Excavations. Cambridge: Cambridge Archaeological Unit.

Lamb, H.H. 1995. *Climate History and the Modern World*. (2nd. edn.). London: Routledge.

Lambeck, K. 1995. Late Devensian and Holocene shorelines of the British Isles and Northern Europe from models of glacio-hydro-isostatic rebound. *Journal of the Geological Society of London* 152, 437–48.

Lambot, B. 1999. Survols de structures funéraires et religieuses de l'Âge du Bronze aux sanctuaires gallo-romains en Champagne (France). *Revue archéologique de Picardie* 17, 315–21.

Lambot, B. and P. Méniel, 1992. *Le site protohistorique d'Acy-Romance (Ardennes)*. (Mémoire de la Société Archéologique Champenoise 7; supplement au bulletin no. 2).

Lambrick, G. 1978. Iron Age settlements in the Upper Thames Valley. In B. Cunliffe and T. Rowley (eds.), *Lowland Iron Age Communities in Europe*. (British Archaeological Reports International Series 48.) Oxford: British Archaeological Reports, 103–19.

Lambrick, G. and T. Allen, 2004. *Gravelly Guy, Stanton Harcourt: The development of a Prehsitoric and Romano-Birtish community*. (Oxford Archaeology/Thames Valley Landscapes Monograph No. 21.) Oxford: Oxford Archaeology.

Lambrick, G. and M. Robinson, 1979. *Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire*. (Council for British Archaeology Research Report 32/Oxfordshire Archaeological Unit Report 2.) Oxford and London: Council for British Archaeology.

Lambrick, G., with M. Robinson, 2009. *Thames through Time: The Archaeology of the Gravel Terraces of the Upper and Middle Thames (Late Prehistory: 1500BC–AD50).* (Oxford Archaeology/Thames Valley Landscapes Monograph No. 29.) Oxford: Oxford Archaeology.

Lane, T. and E.L. Morris (eds.) 2001. *A Millennium of Saltmaking: Prehistoric and Romano-British Salt Production in the Fenland*, Sleaford: Heritage Trust of Lincolnshire.

Lanting, J.N. and W.G. Mook, 1977. *Pre- and Proto-history of the Netherlands in Terms of Radiocarbon Dates*. Groningen: Centrum voor Isotopen Onderzoek.

Lanting, J.N. and J.D. van der Waals, 1972. British Beakers as seen from the continent: A review article. *Helinium* 12, 20–46.

Lawson, A. 1984. The Bronze Age in East Anglia with particular reference to Norfolk. In C. Barringer (ed.), *Aspects of East Anglian Prehistory*. Norwich: Geo Books, 141–78.

Lavender, N.J. 1998. Prehistoric and Romano-British activity at the William Edwards School, Stifford Clay Road, Grays; excavations 1997. *Essex Archaeology & History* 29, 19–32.

Lavender, N.J. 1991. A Late Iron Age burial enclosure at Maldon Hall Farm, Essex: excavations 1989. *Proceedings of the Prehistoric Society* 57, 203–9.

Lawson, A.J., E.A. Martin, and D. Priddy, 1981. *The Barrows of East Anglia*. (East Anglia Archaeology Report 12.) Gressinghall: Norfolk Archaeological Unit, Norfolk Museums Service, Suffolk County Council and Essex County Council.

Lehoërff, A., with J. Bourgeois, P. Clark and M. Talon, 2012. *Beyond the Horizon: Societies of the Channel and North Sea 3,500 Years Ago*. Paris: Somogy Art Publishers.

Leivers, M., C. Barnett and P. Harding, 2007. Excavations of Mesolithic and Neolithic flint scatters and accompanying enviromental sequences at Tank Hill Road, Purfleet, 2002. *Essex Archaeology and History* 38, 1–44.

Lewis, J. 2000. The Neolithic period. In M. Kendall (ed.), *The Archaeology of Greater London: an assessment of archaeological evidence for human presence in the area now covered by Greater London*,. London: Museum of London 63–80.

Light, A., A.J. Schofield and S.J. Shennan, 1995. The middle Avon valley survey: a study in settlement history. *Proceedings of the Hampshire Field Club* 50, 43–101.

Liversage, G.D. 1968. Excavations at Dalkey Island, Co. Dublin, 1956–1959. *Proceedings of the Royal Irish Academy* 66 (C), 53–233.

Long, A.J., R.G. Scaife and R.J. Edwards, 2000. Stratigraphic architecture, relative sea-level, and models of estuary development in southern England: new data from Southampton Water. In K. Pye and J.R.L. Allen (eds), *Coastal and Estuarine Environments: Sedimentology, Geomorphology, and Geoarchaeology*. (Geological Society of London Special Publications 175.) London: Geological Society, 253–79.

Longley, D. 1980. *Runnymede Bridge 1976: Excavations on the site of a Late Bronze Age settlement*. (Surrey Archaeological Research Volume 6.) Guildford: Surrey Archaeological Society.

Longworth, I.H. 1971a. 'The Pottery' in I.H. Longworth, G.J. Wainwright and K.E. Wilson (eds.), The Grooved Ware site at Lion Point, Clacton. *British Museum Quarterly* 35, 93–124.

Longworth, I.H. 1971b. The Neolithic Pottery. In G.J. Wainwright and I.H. Longworth, *Durrington Walls Excavations 1966–1968*. (Society of Antiquaries of London Research Report 29.) London: Society of Antiquaries of London, 48–155.

Longworth, I.H. 1981. Neolithic and Bronze Age pottery. In R. Mercer, *Grimes Graves Norfolk: Excavations 1971–1972*. London: HMSO, 39–59.

Longworth, I.H. 1984. *Collared Urns of the Bronze Age in Great Britain and Ireland*. Cambridge: Cambridge University Press.

Longworth, I.H. and J. Cherry, 1986. *Archaeology in Britain since 1945*. London: British Museum Publications.

Longworth, I.J. and R.M.J. Cleal, 1999. Grooved Ware Gazetteer. In R. Cleal and A. MacSween (eds.), *Grooved Ware in Britain and Ireland*. (Neolithic Studies Group Seminar Papers 3.) Oxford: Oxbow Books, 177–206.

Longworth, I.H., G.J. Wainwright and K.E. Wilson, 1971. A Grooved Ware site at Lion Point, Clacton. *British Museum Quarterly* 35, 93–124.

Lucas, G. 2001a. *Critical Approaches to Fieldwork: Contemporary and Historical Archaeological Practice*. London: Routledge.

Lucas, G. 2001b. Destruction and the rhetoric of excavation. *Norwegian Archaeological Review* 34, 35–46.

Lucy, S. and J.D. Hill, 1994. Critical histories of British archaeology: an account of a meeting held in Cambridge, July 1993. *Archaeological Review from Cambridge* 12(1), 77–90.

Luke, M. 2008. *Life in the Loop: Investigation of a Prehistoric and Romano-British Landscape at Biddenham Loop, Bedfordshire*. (Albion Archaeology/East Anglian Archaeology Report 125.) Bedford: Albion Archaeology.

Lydden Valley Research Group, 2006. *The Geology, Archaeology and History of Lydden Valley and Sandwich Bay.* Dover.

Lyons, A. 2011. High living at Marks Warren: a North-east London landscape from the Mesolithic to the modern period. *Transactions of the Essex Society for Archaeology and History* 2, 3–57.

Mack, R.P. 1975. *The Coinage of Ancient Britain*. London: Seaby.

Mackreth, D. 1981. The brooches. In C. Partridge, *Skeleton Green. A Late Iron Age and Romano-British site*. (Britannia Monograph 2.) London: Society for the Promotion of Roman Studies, 130–51.

Mackreth, D. 1988. Excavations at an Iron Age and Roman enclosure at Werrington. *Britannia* 19, 59–150.

Mackreth, D. 1992. Brooches of copper alloy and of iron. In T. Gregory, *Excavations in Thetford, 1980–1982: Fison Way.* (East Anglian Archaeology 53.) Gressenhall: Norfolk Field Archaeology Division, 120–9.

Macpherson-Grant, N. 1980. Archaeological work along the A2, 1966–74. *Archaeologia Cantiana* 96, 133–83.

Maddy, D., D. Bridgland and R. Westerway, 2001. Uplift-driven valley incision and climate-controlled river terrace development in the Thames Valley, UK. *Quaternary International* 79, 23–36.

Major, H. 1998. Fired Clay. In G.A. Carter (ed.), *Excavations at the Orsett 'Cock' Enclosure, Essex, 1976*. (East Anglian Archaeology Report No. 86.) Chelmsford: Essex County Council Archaeology Section, 106–110.

Major, H. 1999. Fired clay. In N.R. Brown, *The Archaeology of Ardleigh, Essex: Excavations 1955-1980*. (East Anglian Archaeology Report 90.) Chelmsford: Essex County Council Heritage Division, 157–8.

Mallouf, R.J. 1982. An analysis of plow-damaged chert artifacts: the Broken Creek Cache (41H186), Hill County, Texas. *Journal of Field Archaeology* 9, 79–98.

Manby, T. 2007. Continuity of monumental tradition into the late Bronze Age: Henges to ring-forts, and shrines. In C. Burgess, P. Topping and F. Lynch (eds), *Beyond Stonehenge: Essays in honour of Colin Burgess*. Oxford: Oxbow, 403–24.

Manby, T.G., A. King and B.E. Vyner, 2003. The Neolithic and Bronze Ages: a time of early agriculture. In T.G. Manby, S. Moorhouse and P. Ottaway, P. (eds), *The Archaeology of Yorkshire, An assessment at the beginning of the 21st Century*. (Yorkshire Archaeological Society Occasional Paper 3.) Leeds: Yorkshire Archaeological Society, 35–116.

Manguel, A. 2008. *The Library at Night*. London: Yale University Press.

Manning, W.H. 1962. Excavation of an Iron Age and Roman site at Chadwell St Mary, Essex. *Transactions of the Essex Archaeological Society* 3, 127–40.

Manning, W.H. 1975. Roman military timber granaries in Britain. *Saalburg Jahrbuch* 32, 105–29.

Manning, W.H. 1985. *Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum*. London: British Museum Publications Ltd.

Manning, W.H. and J.A. MacDonald, 1996. Iron artifacts (other than brooches). In J. May (ed.), *Dragonby. Report on Excavations at an Iron Age and Romano-British Settlement in North Lincolnshire. Volume 1*. Oxford: Oxbow.

Mansfeld, G. 1973. *Die Fibeln der Heuneburg 1950–1970*. (Heuneburg Studien II/ Römisch-Germanische Forschungen 33). Berlin: Walter de Gruyter.

Martingell, H. 2003. Later prehistoric and historic use of flint in England. In N. Moloney and M.J. Shott (eds), *Lithic Analysis at the Millennium*. London: Archetype.

Marx, U, G. Schwarz, M. Schwarz and E. Wizisla (eds.). 2007. *Walter Benjamin's Archive: Images, Texts. Signs*. London: Verso.

May, J. 1996. *Dragonby: Report on Excavations at an Iron Age and Romano-British Settlement in North Lincolnshire*. (Oxbow Monographs 61.) Oxford: Oxbow.

McClaren, A. 2008. Flintworking in the British later Bronze Age and Iron Ages: a critical review and statement of research proposals. *Lithic Technology* 33/2, 141–59.

McDonnell, J.G. 1993. Slags and ironworking residues. In H. Hamerow, *Excavations at Mucking, volume 2: the Anglo-Saxon settlement*. London: English Heritage, 82–3.

McInnes, I.J. 1964. The Neolithic and Early Bronze Age pottery from the Luce Sands, Wigtownshire. *Proceedings of the Society of Antiquaries of Scotland* 97, 40–87.

McOmish, D. 2011. *Banjo Enclosures*. London: English Heritage.

Meadows, J, Cook, G. and C. Bronk Ramsey, 2013. Radiocarbon dating. In N. Brown and M. Medlycott, *The Neolithic and Late Bronze Age Enclosures at Springfield Lyons, Essex*. (East Anglian Archaeology Report 149.) Chelmsford: Essex County Council, 141–7.

Meddens, F.M. 1996. Sites from the Thames estuary wetlands, England, and their Bronze Age use. *Antiquity* 70, 325–34.

Mercer, A. and A. Saville, 1981. *The Flint Assemblage, Grimes Graves, Norfolk. Excavations 1971–72 Vol II*. (Department of the Environment Archaeological Report 11.) London: HMSO.

Mercer, R. 1981. *Grimes Graves Norfolk: Excavations 1971–1972*. London: HMSO.

Metzler, J. 1995. *Das Treverische Oppidum auf dem Titelberg*. (Dossiers d'Archéologie du Musée Nationale d'Histoire et d'Art 3.) Luxembourg: Musée Nationale d'Histoire et d'Art 3.

Miles, D., S. Palmer, A. Smith and G. Perpetua Jones, 2007. *Iron Age and Roman Settlement in the Upper Thames Valley: Excavations at Claydon Pike and other sites within the Cotswold Water Park*. (Oxford Archaeology/Thames Valley Landscapes Monograph No. 26.) Oxford: Oxford Archaeology.

Millett, M. 2007. Roman Kent. In J. Williams (ed.), *The Archaeology of Kent to AD 800*. Woodbridge: Boydell Press, 135–84.

Milton, B. 1986. The Orsett 'Cock' Beaker Burial. In D. Priddy (ed.), Work of the Essex County Council Archaeology Section, 1983–84. *Essex Archaeology and History* 16, 87–91.

Moffett, J.C. 1989. Computer perceptions in archaeology 1: the Deep Thought Syndrome. *Archaeological Computing Newsletter* 20, 11–16.

Moira, Countess of. 1785. Letter. *Archaeologia* 7, 90.

Moody, G. 2008. *The Isle of Thanet, from Prehistory to the Norman Conquest*. Stroud: The History Press.

Moore, J. and D. Jennings, 1992. *Reading Business Park: a Bronze Age landscape*. (Thames Valley Landscapes Monograph 1.) Oxford: Oxford Archaeology.

Moreland, J. 2001. *Archaeology and Text*. London: Duckworth.

Morigi, A., D. Schreve, M. White, G. Hey, P. Garwood, M.

Robinson, A. Barclay and P. Bradley, 2011. *The Thames Through Time: The archaeology of the gravel terraces of the Upper and Middle Thames:early prehistory to 1500BC*. Oxford: Oxford University School of Archaeology for Oxford Archaeology.

Morris, P. 1979. *Agricultural Buildings in Roman Britain*. (British Archaeological Reports British Series 70.) Oxford: BAR.

Mudd, A. 1994. The excavation of a Late Bronze Age site at Coldharbour Road, Gravesend. *Archaeologia Cantiana* 114, 363–410.

Muir Evans, H. undated. *A Short History of the Thames Estuary*. London: Imray, Laurie, Norie and Wilson Ltd.

Murphy, P. 2009. *The English Coast: A History and Prospect*. London: Continuum Books.

Murphy, P. 2013. Carbonised plant remains from Neolithic, Late Bronze Age and Roman contexts. In N. Brown and M. Medlycott, *The Neolithic and Late Bronze Age Enclosures at Springfield Lyons, Essex*. (East Anglian Archaeology Report 149.) Chelmsford: Essex County Council, 126–40.

Murray, T. (ed.) 1999. *Encyclopedia of Archaeology: The Great Archaeologists, Volume 2*. Santa Barbara, California: ABC-Clio.

Myres, J.N.L. 1968. The Anglo-Saxon pottery from Mucking. *Antiquaries Journal* 48, 222–8.

Neal, D.S., A. Wardle and J. Hunn, 1990. *Excavation of Iron Age, Roman and Medieval Settlement at Gorhambury, St Albans*. (English Heritage Archaeological Report No. 14.) London: English Heritage.

Needham, S. 1990. *The Petters Late Bronze Age Metalwork: an analytical study of Thames Valley metalworking in its settlement context*. (British Museum Occassional Paper No 70.) London: British Museum.

Needham, S. 1991. *Excavations and Salvage at Runnymede Bridge 1978. The Late Bronze Age Waterfront Site*. London: British Museum.

Needham. S. 1992. The structure of settlement and ritual in the Late Bronze Age of south-east Britain. In C. Mordant and A. Richards (eds.), *L'habitat et l'occupation du sol à l'Age due Bronze en Europe*. Editors du Comit des Travaux historique et sceientifique/ Documents Préhistorique 4, 49–69.

Needham, S. 1996a. Post Deverel-Rimbury pottery. In R.P.J Jackson and T.W. Potter, *Excavations at Stonea, Cambridgeshire, 1980–85*. London. British Museum Press, 245–57.

Needham, S. 1996b. The Late Bronze Age pottery: style, fabric and finish. In S. Needham and T. Spence, *Refuse and Disposal at Area 16 East, Runnymede. Runnymede Bridge Resercah Excavations*. (Volume 2.) London: British Museum, 106–64.

Needham, S. 2007. 800 BC: The Great Divide. In C. Haselgrove, C. and R. Pope (ed.), *The Earlier Iron Age in Britain and the near Continent*. Oxford. Oxbow, 39–63.

Needham, S.P. and S. Bridgford, 2013. Deposits of clay refractories for casting bronze swords. In N. Brown and M. Medlycott, *The Neolithic and Late Bronze Age Enclosures at Springfield Lyons, Essex*. (East Anglian Archaeology Report 149.) Chelmsford: Essex County Council, 47–74.

Needham, S.P., C.B. Ramsey, D. Coombs, C. Cartwright and P. Pettitt, 1997. An independent chronology for British Bronze Age metalwork: the results of the Oxford radiocarbon accelerator programme. *Archaeological Journal* 154, 55–107.

Needham, S. and T. Spence, 1996. *Refuse and Disposal at Area 16 East, Runnymede. Runnymede Bridge Research Excavations*. (Volume 2.) London: British Museum Press.

Niblett, R. 1999. *The Excavation of a Ceremonial Site at Folly Lane, Verulamium*. (Britannia Monograph Series 14.) London: Society for the Promotion of Roman Studies.

Nichols, J.F. 1932. Southchurch Hall. *Journal of the British Archaeological Association* (New Series) 37, 101–17.

O'Connell, M. 1986. *Petter's Sports Field Egham. Excavation of a Late Bronze Age/Early Iron Age Site.* (Surrey Archaeological Society Research Volume 10.) Guildford: Surrey Archaeological Society.

O'Connor, B. 1980. *Cross Channel Relations in the Later Bronze Age*. (British Archaeological Reports International Series 91.) Oxford: BAR.

Olivier, A. 1988. The brooches. In T.W. Potter and S. Trow, Puckeridge-Braughing, Hertfordshire: the Ermine Street excavations 1971–2. *Hertfordshire Archaeology* 10, 35–53.

O'Neil, H.E. 1945. The Roman villa at Park Street, near St Albans, Hertfordshire: Report on the excavations of 1943–45. *Archaeological Journal* 102, 21–110.

Oswald, A. 1997. A doorway on the past: practical and mystical concerns in the orientation of roundhouse doorways. In A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies: New Approaches to the British Iron Age*. (Oxbow Monograph 71.) Oxford: Oxbow Books, 87–95.

Oxford & Wessex Archaeology, forthcoming. *East Kent Access Road*. Salisbury: Wessex Archaeology.

Parfitt, K. 1995. *Iron Age Burials from Mill Hill, Deal*. London: British Museum Press.

Parker Pearson, M. 1996. Food, fertility and front doors in the first millennium BC. In T.C. Champion and J.R. Collis (eds), *The Iron Age in Britain and Ireland: Recent Trends*. Sheffield. J.R. Collis Publications, 117–32.

Parker Pearson, M. 1999. *The Archaeology of Death and Burial*. Stroud: Sutton.

Parker Pearson. M. and C. Richards, 1994. Architecture and order: Spatial representation and archaeology. In M. Parker Pearson and C. Richards (eds.), *Architecture and Order: Approaches to Social Space*. London: Routledge, 38–72.

Partridge, C. 1981. *Skeleton Green: a Late Iron Age and Romano-British Site*. (Britannia Monograph 2.) London: Society for the Promotion of Roman Studies.

Peacock, D.P.S. 1987. Iron Age and Roman quern production at Lodsworth, West Sussex. *Antiquaries Journal* 67(1), 61–85.

Perring, D. and M. Pitts, 2013. *Alien Cities: Consumption and the origins of urbanism in Roman Britain*. London: Spoilheap Publications.

Perry, B.T. 1970. Iron Age enclosures and settlements on the Hampshire chalklands. *Archaeological Journal* 126, 29–43.

Perry, B.T. 1974. Excavations at Bramdean, Hampshire, 1965 and 1966, and a discussion of similar sites in southern England. *Proceedings of the Hampshire Field Club* 29, 41–77.

Philp, B.J. 2002. *Archaeology in the Front Line: 50 years of Kent rescue 1952–2002*. Dover: Kent Archaeological Rescue Unit.

Philp, B.J. 2005. *The Excavation of the Roman Fort at Reculver, Kent*. Dover: Kent Archaeological Rescue Unit.

Philpott, R. 1999. *Burial Practices in Roman Britain. A survey of grave treatment and furnishing AD43–410*. (British Archaeological Reports British Series 219.) Oxford: BAR.

Pierpoint, S. 1979. Three radiocarbon dates for Yorkshire prehistory. *Antiquity* 53, 224–5.

Pitts, M.W. 1978. On the shape of waste flakes as an index of technological change in lithic industries. *Journal of Archaeological Science* 5/1, 17–37.

Pitts, M.W. 2001. Margaret Jones: archaeologist at the sharp end of history. *The Guardian*. guardian.co.uk news/2001/may/02/guardianobituaries.education (accessed 11.4.2011).

Pitts, M.W and R.M. Jacobi, 1979. Some aspects of change in flaked stone industries of the Mesolithic and Neolithic in Southern Britain. *Journal of Archaeological Science*, Volume 6/2, 163–77.

Pollard, J. 1992. The Sanctuary, Overton Hill, Wiltshire: a re-examination. *Proceedings of the Prehistoric Society* 58, 213–26.

Pollard, J. 1999. 'These places have their moments': thoughts on settlement practices in the British Neolithic. In J. Brück and M. Goodman (eds.), *Making Places in the Prehistoric World: Themes in Settlement Archaeology*. London: UCL Press, 76–93.

Pollard, J. 2002. The ring-ditch and the hollow: excavation of a Bronze Age 'shrine' and associated features at Pampisford, Cambridgeshire. *Proceedings of the Cambridge Antiquarian Society* 91, 5–21.

Pope, R. 2011. Processual archaeology and gender politics. The loss of innocence. *Archaeological Dialogues* 18(1), 59–86.

Potter, T.W. 1974. An Iron Age site at Rainbow Wood, Thurrock, Essex. *Transactions of the Essex Archaeological Societ*y 6, 1–12.

Powell, A.B. 2012. *By River, Field and Factories: archaeological and cultural heritage investigation on the site of the London 2012 Olympic and Paralympic Games*. Salisbury: Wessex Archaeology.

Powell-Cotton, P.H.G. and O.G.S. Crawford, 1924. The Birchington Hoard. *Antiquaries Journal* 4, 220–6.

Powlesland, D. 2011. West Heslerton: Past, present and future. In. J. Schofield (ed.), *Great Excavations: Shaping the Archaeological Profession*. Oxford: Oxbow Books, 247–69.

Priddy, D. 1981. The barrows of Essex. In A.J. Lawson, E.A. Martin and D. Priddy (eds.), *The Barrows of East Anglia*. (East Anglian Archaeology Report 12.) Gressinghall: Norfolk Archaeological Unit, Norfolk Museums Service, Suffolk County Council and Essex County Council.

Priddy, D. and D. Buckley, 1987. *An Assessment of Excavated Enclosures in Essex, Together with a Selection of Cropmark Sites*. (East Anglian Archaeology Report 33.) Chelmsford: Essex County Council Archaeology Section.

Pryor, F. 1974. *Earthmoving on Open Archaeological. Sites*. (Nene Valley Research Committee Archaeological Handbook 1.) Peterborough: Nene Valley Research Committee.

Pryor, F. 1978. *Excavation at Fengate, Peterborough, England: The Second Report*. (Royal Ontario Museum Monograph 5.) Toronto: Royal Ontario Museum.

Pryor, F. 1980a. *Excavation at Fengate, Peterborough, England: The Third Report*. (Royal Ontario Museum Monograph 6/Northants Archaeological Monograph 1.) Northampton & Toronto: Royal Ontario Museum, Northants Archaeological Society.

Pryor, F. 1980b. Survey Excavation. *Rescue News* 21, 6.

Pryor, F. 1984. *Excavation at Fengate, Peterborough, England: The Fourth Report*. (Royal Ontario Museum Monograph 7/ Northants Archaeological Monograph 2.) Northampton & Toronto: Royal Ontario Museum, Northants Archaeological Society.

Pryor, F. 1996. Sheep, stockyards and field systems: Bronze Age livestock populations in the Fenlands of eastern England. *Antiquity* 70, 313–24.

Rady, J. 2010. *Excvations at Thanet Earth 2007–2008: Assessment Report, Volume 1*. Canterbury: Canterbury Archaeolgical Trust.

Rahtz, P.A. (ed.) 1974. *Rescue Archaeology*. Harmondsworth: Penguin.

Rahtz, P.A. 2001a. *Living Archaeology*. Stroud: Tempus.

Rahtz, P.A. 2001b. A view from the old school. *Antiquity* 75, 604–5.

Rahtz, P.A. and E. Greenfield, 1977. *Excavations at Chew Valley Lake, Somerset*. London: HMSO.

Reader, F.W. 1908. Report of the Red Hills Exploration Committee 1906–7. *Proceedings of the Society of Antiquaries* 22, 164–214.

Reaney, P. H. 1935. *The Place-Names of Essex*. (English Place-Name Society Volume 12.) Cambridge: Cambridge University Press.

Reynolds, N. and J. Barber, 1984. Analytical Excavation. *Antiquity* 58, 95–102.

Richards, C. and J. Thomas, 1984. Ritual activity and structured deposition in later Neolithic Wessex. In R. Bradley and J. Gardiner (eds.), *Neolithic Studies. A Review of Some Current Research*. (British Archaeological Reports British Series 133.) Oxford: BAR, 189–218.

Richards, J. 1990. *The Stonehenge Environs Project*. English Heritage Archaeological Report.

Richardson, K. 1951. The excavation of Iron Age villages on Boscombe Down West. *Wiltshire Archaeological and Natural History Magazine* 54, 123–68.

Riddell, Lady, S. 1779. Letter. *Archaeologia* 3, 414.

Riley, D.N. 1987. *Air Photography and Archaeology*. London: Duckworth.

Riley, H. 1990. The scraper assemblages and petit tranchet derivative arrowheads. In J. Richards (ed.), *Stonehenge Environs Project*. London: HBMC, 212–32.

Rippon, S. 2000. *The Transformation of Coastal Wetlands. Exploitation and management of marshland landscapes in North-West Europe during the Roman and Medieval periods*. Oxford: Oxford University Press (for the British Academy).

Robarts, N.F. 1905. Notes on a recently discovered British camp near Wallington, Surrey. *Journal of the Royal Anthropological Institute* 35, 387–97.

Roberts, J. 1995. *British Women Archaeologists: From the Eighteenth Century to the Beginning of the Second World War*. Unpublished M.Phil. thesis, Cardiff University.

Roberts, J. 2002. 'That Terrible Woman': the life work and legacy of Maud Cunnington. *The Wiltshire Archaeological & Natural History Magazine*. 95, 46–62.

Roberts, J. 2006. *Towards a Cultural History of Archaeology: British Archaeology between the Wars*. Unpublished PhD thesis, Cardiff University.

Rodwell, K.A. 1988. *The Prehistoric and Roman Settlement at Kelvedon, Essex*. (Chelmsford Archaeological Trust Report 6/ Council for British Archaeology Research Report 63.) London: Chelmsford Archaeological Trust and the Council for British Archaeology.

Rodwell, K.A. and W.J. Rodwell, 1973. Prehistoric, Roman and Saxon finds from Stanford le Hope. *Transactions of the Essex Archaeological Society* 5, 123–26.

Rodwell, W. 1978. Buildings and settlements in South-East Britain in the Late Iron Age. In B. Cunliffe and T. Rowley (eds.), *Lowland Iron Age Communities in Europe*. (British Archaeological Reports International Series 48.) Oxford: British Archaeological Reports, 25–41.

Rodwell, W. 1996. Archaeology in Essex since 1945: A review. In O. Bedwin (ed.), *The Archaeology of Essex: Proceedings of the Writtle Conference*. Chelmsford: Essex County Council Planning Dept, 199–206.

Roesdahl, E. 1982. *Viking Age Denmark*. London: British Museum.

Roskams, S. 2001. *Excavation*. (Cambridge Manuals in Archaeology). Cambridge: Cambridge University Press.

Round, H.C. 1903. The Domesday Survey. In H. A. Doubleday (ed), *Victoria County History of Essex, Volume 1*. London: University of London. Institute of Historical Research.

Royal Commission on Historic Monuments (England; RCHM). 1960. *A Matter of Time: An archaeological survey of the river gravels of England*. London: HMSO.

Roymans, N. 1990. *Tribal Societies in Northern Gaul: An anthropological approach*. (Cingula 12.) Amsterdam: University of Amsterdam.

Rumble, A. 1983. *Domesday Book: Essex*. Chichester: Phillimore.

Sarauw, T. 2007. Male symbols or warrior identities? The 'archery burials' of the Danish Bell Beaker Culture. *Journal of Anthropological Archaeology* 26, 65–87.

Schofield, J. (ed.) 2010. *Great Excavations: Shaping the Archaeological Profession*. Oxford: Oxbow Books.

Scott, Lady John. 1864. Two barrows at Spottiswode. *Proceedings of the Society of Antiquaries of Scotland* 5, 222.

Sealey, P. 1996. The Iron Age. In O. Bedwin (ed.), *The Archaeology of Essex: Proceedings of the 1993 Writtle Conference*. Chelmsford: Essex County Council, 46–68.

Sealey, P. 2009. New light on the wine trade with Julio-Claudian Britain, *Britannia* 40, 1–40.

Sealey, P. 2013. The Iron Age of Essex revisited. In, The Archaeology of Essex: Proceedings of the Chelmsford Conference (2008), *Transactions of the Essex Society for Archaeology and History* 3 (for 2012), 37–60.

Sealey, P. forthcoming. *Where have all the People gone? A Puzzle from Middle and Late Iron Age Essex*.

Selkirk, A. 1979. The latter Bronze Age. *Current Archaeology* 6, 229, 232–3 & 237–9.

Sharples, N. 2010. *Social Relations in Later Prehistory: Wessex in the First Millennium BC*. Oxford: Oxford University Press.

Shennan, I., K. Lambeck, R. Flather, B. Horton, J. McArthur, J. Innes, J. Lloyd, M. Rutherford and R. Wingfield, 2000a. Modelling western North Sea palaeogeographies and tidal changes during the Holocene. In I. Shennan and J. Andrews (eds), *Holocene Land-Sea Interaction and Environmental Change around the North Sea*. (Geological Society of London Special Publication 166.) London: Geological Society, 299–319.

Shennan, I., K. Lambeck, B. Horton, J. Innes, J. Lloyd, J. McArthur and M. Rutherford, 2000b. Holocene isostasy and relative sea-level changes on the east coast of England', in I. Shennan and J. Andrews (eds), *Holocene Land-Sea Interaction and Environmental Change Around the North Sea*. (Geological Society of London Special Publication 166.) London: Geological Society, 275–98.

Sidell, E.J., K.N. Wilkinson, R.G. Scaife and N. Cameron, 2000. *The Holocene Evolution of the River Thames. Archaeological investigations (1991–1998) in advance of the London Underground Limited Jubilee Line extension*. (Museum of London Archaeology Service Monograph 5.) London: MOLAS.

Simmonds, A., F.F. Wenban-Smith, M.R. Bates, , K. Powell, D. Sykes, R. Devaney, D. Stansbie and D. Score, 2011. *Excavations in North-west Kent 2005–2007*. Oxford: Oxford Archaeology.

Sisson, S. and J.D. Grossman, 1938. *The Anatomy of the Domestic Animals*. Philadelphia: Saunders.

Smiles, S. 1864. *James Brindley and the Early Engineers*. London: John Murray.

Smith, A. 2001. *The Differential Use of Constructed Sacred Space in Southern Britain, from the Late Iron Age to the 4th Century AD*. (British Archaeological Reports, British Series 318.) Oxford: Archaeopress.

Smith, I.F. 1965. *Windmill Hill and Avebury*. Oxford: Clarendon Press.

Smith, I.F. 1974. The Neolithic. In C. Renfrew (ed.), *British Prehistory – A New Outline*. London: Duckworth, 100–36.

Smith, P.J. 1994. *Grahame Clark, the Fenland Research Committee and Prehistory at Cambridge*. Unpublished MPhil Thesis, University of Cambridge.

Sørensen, M.L.S. 1998. Rescue and recovery: on historiographies of women archaeologists. In M. Díaz-Andreu and M.L.S. Sørensen (eds.), *Excavating Women: History of Women in European Archaeology*. London: Taylor & Francis, 31–60.

Spratling, M.G. 1979. The debris of metalworking. In G.J. Wainwright, *Gussage All Saints. An Iron Age Settlement in Dorset* (Department of the Environment Archaeological Reports 10.) London: HMSO.

St. Joseph, J.K. 1964. Air Reconnaissance: recent results. *Antiquity* 38, 217–18, pl. xxxvii b.

Stapert, D. and L. Johansen, 1999. Flint and pyrite: making fire in the Stone Age. *Antiquity* 73, 765–77.

Stead, I.M. 1969. Verulamium 1966–8. *Antiquity* 43, 45–52.

Stead, I.M. 2006. British Iron Age swords and scabbards. London: British Museum.

Stead, I.M., J.-L. Flouest and V. Rigby, 2006. *Iron Age and Roman Burials in Champagne*. Oxford: Oxbow.

Stead, I.M, and V. Rigby, 1986. *Baldock: the excavation of a Roman and pre-Roman settlement, 1968–72*. (Britannia monograph 7.) London: Society for the Promotion of Roman Studies.

Stead, I.M. and V. Rigby, 1989. *Verulamium: the King Harry Lane site*. (English Heritage Archaeological Report 12.) London: English Heritage.

Stead, I.M. and V. Rigby, 1999. *The Morel Collection. Iron Age Antiquities from Champagne in The British Museum*. London: British Museum Press.

Stebbing, W.P.D. 1934. An early Iron Age site at Deal. *Archaeologia Cantiana* 46, 207–9.

Stevens, C.J. and D.Q. Fuller, 2012. Did Neolithic farming fail? The case for a Bronze Age agricultural revolution in the British Isles. *Antiquity* 86, 707–22.

Stevenson, J. 2013. *Living by the Sword: The Archaeology of Brisley Farm, Ashford, Kent*. (Archaeology South-East Monograph 6). London: Spoilheap Publications.

St Joseph, J.K. 1964. Air reconnaissance: recent results. *Antiquity* 38, 217–18.

Sunter, N and P.J. Woodward, 1987. *Romano-British*

Industries in Purbeck, Dorset. (Dorset Natural History and Archaeological Society Monograph No. 6.) Dorchester: Dorset Natural History and Archaeological Society.

Swan, V.G. 1984. *The Roman Pottery Kilns of Britain*. (RCHME Supplement 5.) London: HMSO.

Tait, J. 1965. *Beakers from Northumberland*. Newcastle upon Tyne: Oriel Press Ltd.

Taylor, C. 1972. The study of settlement patterns in pre-Saxon Britain. In P.J. Ucko, R. Tringham and G.W. Dimbleby (eds), *Man, Settlement and Urbanism*. London: Duckworth, 110–13.

Thalin-Bergman, L. 1979. *Blacksmithing in Prehistoric Sweden. In H. Clarke (ed.), Iron and Man in Prehistoric Sweden*. Stockholm: Jernkontoret, 99–133.

Thomas, J. 1991a. *Rethinking the Neolithic*. London: Routledge.

Thomas, J. 1991b. Reading the body: Beaker funerary practice in Britain. In P. Garwood, D. Jennings, R. Skeates and J. Toms (eds), *Sacred and Profane. Proceedings of a Conference on Archaeology, Ritual and Religion Oxford 1989*. (Oxford University Committee for Archaeology monograph.) Oxford: Oxford University Committee for Archaeology, 33–42.

Thompson, F.H. 1986. The Iron Age hillfort of Oldbury, Kent: Excavations 1983–4. *Antiquaries Journal* 66, 267–86.

Thompson, I. 1982. *Grog-tempered 'Belgic' pottery of South-eastern Britain*. (British Archaeology Reports British Series 106.) Oxford: BAR.

Thompson, I. 2002. *Late Iron Age Pottery at The Grove, Watford, Hertfordshire (site code GRO99)*; unpublished report for AOC Archaeology.

Thornhill, P. 1977. A lower Thames ford and the campaign of 54 BC and AD 43. *Archaeologia Cantiana* 92, 119–28.

Timby, J., R. Brown, E. Biddulph, A. Hardy and A. Powell, 2007. *A Slice of Rural Essex: Recent archaeological discoveries from the A120 between Stansted Airport and Braintree*. (Oxford Wessex Archaeology Monograph 1.) Oxford & Salisbury: Oxford and Wessex Archaeology.

Tipper, J. 2004. *The Grubenhaus in Anglo-Saxon England: an analysis and interpretation of the evidence from a most distinctive building type*. Yedingham: Landscape Research Centre.

Toller, H.S. 1980. An interim report on the excavation of the Orsett 'Cock' enclosure, Essex: 1976–79. *Britannia* 11, 35–42.

Trigger, B. 2007. *A History of Archaeological Thought* (2nd edition). Cambridge: Cambridge University Press.

Trotter, M. and B.B. Hixon, 1974. Sequential changes in weight density and percentage ash weight of human skeletons from an early fetal period through old age. *The Anatomical Record* 179, 1–18.

Tylecote, R.F. 1986. *The Prehistory of Metallurgy*. London: Institute of Metals.

Tyler, S. and H. Major, 2005. *The Early Anglo-Saxon Cemetery and Later Saxon Settlement at Springfield Lyons, Essex*. (East Anglian Archaeology 111.) Chelmsford: Essex County Council.

van der Waals, J.D. and W. Glasbergen, 1955. Beaker types and their distribution in the Netherlands. *Palaeohistoria* IV, 5–46.

van Es, W.A. 1967. *Wijster, A Native Village beyond the Imperial Frontier, 150–425AD*. (*Palaeohistoria* 11.) Groningen: J.B. Wolters.

Verger, S. (ed.), 2000. *Rites et espaces en pays celte et méditerranéen: etude comparée à partis du sanctuarie de'Acy-Romance (Ardennes, France)*. (Collection de l'École française de Rome 276.)

Verlinde, A.D. 1971. Spätneolithische und frühbronze-zeitliche Siedlungsspuren auf der Meerloer-Heide, Gem. Meerlo, Prov. Limburg, und ihre Stellung. *Analecta Praehistorica Leidensia* 4, 26–46.

von den Driesch, A. 1976. *A Guide to the Measurement of Animal Bones from Archaeological Sites*. (Peabody Museum Bulletin 1.) Harvard University: Peabody Museum.

Wainwright, G.J. 1970. An Iron Age promontory fort at Budbury, Bradford upon Avon, Wiltshire. *Wiltshire Archaeology and Natural History Magazine* 65, 108–66.

Wainwright, G.J. 1979. *Mount Pleasant, Dorset: excavations, 1970–71: incorporating an account of excavations undertaken at Woodhenge in 1970*. (Reports of the Research Committee of the Society of Antiquaries of London 37.) London: Society of Antiquaries of London.

Wainwright, G.J. 2000. Time Please. *Antiquity* 74, 909–43.

Wainwright, G.J. and I.H. Longworth, 1971. *Durrington Walls: excavations 1966–68*. (Reports of the Research Committee of the Society of Antiquaries of London 29.) London: Society of Antiquaries of London.

Wainwright, G.J. and M. Spratling, 1973. The Iron Age settlement of Gussage All Saints (Pt I): The settlement. *Antiquity* 47, 109–30.

Wait, G. 1985. *Ritual and Religion in Iron Age Britain*. (British Archaeological Reports, British Series 149.) Oxford: British Archaeological Reports.

Wait, G. and J. Cotton, 2000. The Iron Age. In M. Kendall (ed.), *The Archaeology of Greater London: an assessment of archaeological evidence for human presence in the area now covered by Greater London*. London: Museum of London, 101–17.

Wallas, A. 1929. *Before the Bluestockings*. London: Allen & Unwin.

Wallis, S. and M. Waughman, 1998. *Archaeology and Landscape in the Lower Blackwater Valley*. (East Anglian Archaeology Report 82.) Chelmsford: Essex County Council.

Ward, I., P. Larcombe and M. Lillie, 2006. The dating of Doggerland – post-glacial geochronology of the southern North Sea. *Environmental Archaeology* 11, 207–18.

Ward-Perkins, J.B. 1938. An Early Iron Age site at Crayford, Kent. *Proceedings of the Prehistoric Society* 4, 15–168.

Ward-Perkins, J.B. 1944. Excavations on the Iron Age hillfort of Oldbury, near Ightham, Kent. *Archaeologia* 90, 127–76.

Warren, S.H. 1912. The classification of the prehistoric remains of Eastern Essex. *Journal of the Royal Anthropological Institute* 42, 91–135.

Warren, H.S., S. Piggott, J.G.D. Clark, M.C. Burkitt, H. Godwin and M.E. Godwin, 1936. Archaeology of the submerged land-surface of the Essex Coast. *Proceedings of the Prehistoric Society* 2, 178–210.

Webb, J. 2001. Margaret Ursula Jones [obituary]. *Panorama* 43. Available online at http://www.thurrock-community.org.uk/historysoc/mujones.htm (last accessed 11.4.2011).

Webster, G. 2002. Catalogue of military equipment. In J. Chadderton (ed.), *The Legionary Fortress at Wroxeter. Excavations by Graham Webster, 1955–85*. (English Heritage Archaeological Report 19.) London: English Heritage, 105–34.

Wessex Archaeology, 2006. *North Kent Coast Rapid Coastal*

Zone Assessment Survey. Phase II: Field Assessment Year Two Report. Ref. 56751.01. Salisbury: Wessex Archaeology.

Wheeler, R.E.M. and T.V Wheeler. 1936. *Verulamium: A Belgic and two Roman Cities*. (Reports of the Research Committee of the Society of Antiquaries of London 11.) Oxford: Society of Antiquaries of London.

Whimster, R. 1981. *Burial Practices in Iron Age Britain: A Discussion and Gazetteer of the Evidence c. 700 B.C.–A.D. 43*. (British Archaeological Reports British Series 90.) Oxford: BAR.

White, R. 1988. *Roman and Celtic Objects from Anglo-Saxon Graves*. (British Archaeological Reports British Series 191.) Oxford: BAR.

Whittaker, J. 1999. Knapping building flints in Norfolk. *Lithic Technology* 26/1, 71–80.

Whittle, A. 1997. Moving on and moving around: Neolithic settlement mobility In P. Topping (ed.), *Neolithic Landscapes*. (Oxbow Monograph 86/Neolithic Studies Group Seminar Papers 2.) Oxford: Oxbow Books, 15–22.

Whittle, A., F. Healy and A. Bayliss, 2011. *Gathering Time: Dating the Early Neolithic Enclosures of Southern Britain and Ireland*. Oxford: Oxbow Books.

Whittle, A., J. Pollard, and C. Grigson, 1999. *The Harmony of Symbols: the Windmill Hill Causewayed Enclosure, Wiltshire*. Oxford: Oxbow Books.

Wilkinson, T.J. 1988. *Archaeology and Environment in South Essex: Rescue Archaeology along the Grays By-pass, 1979/80*. (East Anglian Archaeology Report 42.) Chelmsford: Archaeology Section, Essex County Council.

Wilkinson, T.J. 2003. *Archaeological Landscapes of the Near East*. Tucson: University of Arizona Press.

Wilkinson, T.J. and P.L. Murphy 1995. *The Archaeology of the Essex Coast, Volume I: The Hullbridge Survey*. (East Anglian Archaeology Report 71.) Chelmsford: Essex County Council Archaeology Section & the Scole Archaeological Committee.

Wilkinson, T.J., P.L. Murphy, N. Brown and E.M. Heppell 2012. *The Archaeology of the Essex Coast, Volume II; Excavations of the Prehistoric Site of the Stumble*. (East Anglian Archaeology 144.) Chelmsford: Essex County Council Archaeology Section in conjunction with ALGAO East.

Williams, D.F. 1980. *Petrological Examination of Late Bronze Age Pottery from Mucking, Essex*. (Unpublished Ancient Monuments Laboratory Report 3078.) Portsmouth: English Heritage.

Williams, J. (ed.) 2007. *The Archaeology of Kent to AD 800.* Woodbridge: Boydell Press.

Williams, J. and N. Brown, (eds.) 1999. *An Archaeological Research Framework for the Greater Thames Estuary.* Chelmsford: Essex County Council, Kent County Council, English Heritage and Thames Estuary Partnership.

Willis, S.H. 2013. Pottery imports to Britain from the empire and continent before the Claudian conquest: a review. In L. Rivet (ed.), *Société française d'étude de la céramique antique en Gaule: actes du congrès d'Amiens 9-12 Mai 2013*. Marseille, 173–8.

Wilthew, P., J. Bayley and R. Linton. 1991. Analysis of the metalworking debris. In T. Gregory, *Excavations in Thetford, 1980-1982, Fisson Way*. (East Anglian Archaeology Report 53.) Gressenhall: Norfolk Field Archaeology Division, 141–3.

Woodfield, C. and C. Johnson, 1989. A Roman Site at Stanton Low on the Great Ouse, Buckinghamshire. *Archaeological Journal* 146, 135–278.

Woodward, A. 2000. When did pots become domestic? Special pots and everyday pots in British prehistory. *Medieval Ceramics* 22–3, 3–10.

Woodward, A. 2002. *British Barrows: A Matter of Life and Death*. Stroud: Tempus.

Worsfold, F.H. 1948. An Early Iron Age Site at Borden. *Archæologia Cantiana*, 61, 148–55.

Wright, R.P. and D.R. Wilson. 1963. Roman Britain in 1962: I. Sites Explored: II. Inscriptions . *Journal of Roman Studies* 53, 125–67.

Wymer, J.J. (ed.) 1977. *Gazetteer of Mesolithic Sites in England and Wales*. (Council for British Archaeology Research Report No 20.) Norwich Geo Abstracts Ltd with Council for British Archaeology.

Wymer, J.J. 1984. East Anglian Palaeolithic sites and their settings. In C. Barringer (ed.), *Aspects of East Anglian Prehistory (Twenty Years after Rainbird Clarke)*. Norwich: Geo Books, 31–42.

Wymer, J.J. 1999. *The Lower Palaeolithic Occupation of Britain*. Salisbury: Wessex Archaeology & English Heritage.

Wymer, J.J. and N. Brown, 1995. *Excavations at North Shoebury: settlement and economy in south-east Essex 1500 BC–AD 1500*. (East Anglian Archaeology Report 75.) Chelmsford: Essex County Council Archaeology Section, Planning Department in conjunction with the Scole Archaeological Committee.

Yarrow, T. 2006. Sites of knowledge: different ways of knowing an archaeological excavation. In M. Edgeworth (ed), *Ethnographies of Archaeology: Cultural Encounters, Material Transformations*. Lanham: Alta Mira, 20–32.

Yates, D.T. 2007. *Land, Power and Prestige: Bronze Age Field Systems in Southern England.* Oxford: Oxbow Books.

Yates, D.T. 2013. Connecting and disconnecting the Bronze Age, in The Archaeology of Essex: Proceedings of the Chelmsford Conference (2008), *Transactions of the Essex Society for Archaeology and History* 3 (for 2012), 26–36.

Young, R. and J. Humphry, 1999. Flint use in Britain after the Bronze Age: time for a re-evaluation. *Proceedings of the Prehistoric Society* 65, 231–42.

Zimmermann, W.H. 1978. 1978 Economy of the Roman Iron Age settlement at Flogeln, Kr Cuxhabe, Lower Saxony: husbandry, cattle farming and manufacturing. In B.W. Cunliffe and R.T. Rowley (eds.), *Lowland Iron Age communities in Europe: papers presented to a conference of the Department for External Studies held at Oxford, October 1977*. (British Archaeological Reports International Series S48.) Oxford: BAR, 147–65.

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